

Technical Report

*Mental Health and Substance
Abuse Services under the*

STATE CHILDREN'S HEALTH INSURANCE PROGRAM



DEPARTMENT OF HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Mental Health Services
Center for Substance Abuse Treatment
www.samhsa.gov

*Mental Health and Substance
Abuse Services under the*

STATE CHILDREN'S HEALTH INSURANCE PROGRAM

Designing Benefits and Estimating Costs

EMBRY HOWELL
SARA ROSCHWALB
MIKI SATAKE

**U.S. Department of Health and
Human Services**

Substance Abuse and Mental Health
Services Administration
Center for Mental Health Services
Office of Managed Care
5600 Fishers Lane
Rockville, MD 20857

Acknowledgments

This report was prepared by Mathematica Policy Research, Inc. (MPR), of Washington, DC. Embry M. Howell, Ph.D., was the project director; Sara Roschwalb, MSW, and Miki Satake assisted her. The government project officer was Judith L. Teich.

Disclaimer

Material for this report was prepared under contract by MPR for SAMHSA. The content of this publication does not necessarily reflect the views or policies of SAMHSA or the U.S. Department of Health and Human Services.

Public Domain Notice

All material appearing in this report is in the public domain and may be reproduced or copied without permission from SAMHSA. Citation of the source is appreciated.

Access to Publication

This publication and the cost model can be accessed electronically at http://www.mentalhealth.org/CMHS/managed_care. Additional copies can be obtained by calling the Center for Mental Health Services Knowledge Exchange Network, 1-800-789-2647.

Originating Office

Office of Managed Care
Center for Mental Health Services
Substance Abuse and Mental Health Services Administration
5600 Fishers Lane, Room 15-87
Rockville, MD 20857
October 2000
DHHS Publication No. (SMA) 01-3473

Suggested Citation

Center for Mental Health Services, Substance Abuse and Mental Health Services Administration. (2000). Mental Health and Substance Abuse Services Under the State Children's Health Insurance Program. *Designing Benefits and Estimating Costs* (DHHS Publication No. [SMA] 01-3473). Rockville, MD.

Table of Contents

Executive Summary	vii
I. Introduction	1
II. Policy Background	3
A. Mental Health and Substance Abuse (MH/SA) Service Systems	3
B. Medicaid and Private Insurance Coverage for Mental Health and Substance Abuse Services	4
C. The State Children’s Health Insurance Program (SCHIP)	6
D. Substance Abuse and Mental Health Services Administration’s (SAMHSA’s) Role	11
III. Literature Review	13
A. Overview	13
B. Methods	13
C. Findings on Prevalence	14
1. Review Articles	14
2. Recent Empirical Studies	14
3. Types of Mental Health Problems	18
4. Summary	22
D. Findings on Use of Mental Health Services	23
1. Use of Any Mental Health Services	23
2. Inpatient Use	25
3. Residential Service Use	29
4. Partial Hospitalization	31
5. Outpatient Service Use	32
6. Case Management	35
7. School-Based Health Services	37
8. Pharmacy Services	37

9.	Summary	39
E.	Findings on Use of Substance Abuse Services	41
F.	Findings on Expenditures	43
IV.	Cost Modeling	51
A.	Overview	51
B.	Total Expenditures for Mental Health Services	52
1.	Expenditures by Type of Service	54
2.	Expenditures by Diagnosis and Age	54
C.	Monthly and Annual Expenditures	55
D.	Alternative Scenarios	56
1.	Alternative Prevalence Assumptions	58
2.	Alternative Utilization Assumptions	58
3.	Alternative Payment Rate Assumptions	58
4.	Eliminating Coverage of Alternative Services	59
E.	Summary	59
V.	References	61
VI.	Appendix A: List of Experts Interviewed for Study	69
VII.	Appendix B: List of Sources for Additional Information on SCHIP	71
VIII.	Appendix C: Coverage of Mental Health and Substance Abuse Services Under SCHIP	73
IX.	Appendix D: Framework for Cost Model	81
X.	Appendix E: Methodologies for Identifying and Measuring Mental Health and Substance Abuse Disorders ..	83
XI.	Appendix F: Cost Model Workbook	87
XII.	Glossary	99

List of Tables and Exhibits

II.1	Type of SCHIP Plan by State	8
II.2	MH/SA Benefits and Expenditures for Selected SCHIP Plans	11
III.1	Literature on the Prevalence of MH/SA Disorders in Children and Adolescents	15
III.2	Literature on the Types of MH/SA Problems in Children and Adolescents	19
III.3	Use of Any Mental Health Service by Children and Adolescents	24
III.4	Use of Inpatient Mental Health Services by Children and Adolescents	26
III.5	Use of Residential Care by Children and Adolescents	30
III.6	Partial Hospitalization for Children and Adolescents	33
III.7	Use of Outpatient Mental Health Services by Children and Adolescents	34
III.8	Use of Case Management by Children and Adolescents in Three Mental Health Demonstration Programs	36
III.9	Use of School-Based Mental Health Services by Children and Adolescents	38
III.10	Use of Mental Health Pharmacy Services by Children and Adolescents	40
III.11	Use of Substance Abuse Services by Adolescents	42
III.12	Average Annual Expenditures for MH/SA Services for Children and Adolescents	44
III.13	Distribution of MH/SA Services Expenditures by Type of Service for Children and Adolescents	47
III.14	Average Expenditures per Service Unit for Selected Mental Health Services for Children and Adolescents	48
IV.1	Estimated Expenditures (in 1,000s) for Mental Health Services for 3,000 SCHIP Children and Adolescents	53
IV.2	Estimated Expenditures per Enrollee for Mental Health Services	55
IV.3	Expenditures for Mental Health Under SCHIP Under Alternative Assumptions	57

Executive Summary

Although the Medicaid program has traditionally provided health insurance coverage for many low-income children and adolescents with mental health and substance abuse (MH/SA) problems, the new State Children's Health Insurance Program (SCHIP) provides a new source of funding for low-income children who are not eligible for Medicaid. This project was designed to investigate how the new SCHIP program could be used to cover MH/SA services and what the cost of such services might be, given what is currently known about prevalence, utilization, and cost of services.

A review of benefits now offered by SCHIP plans shows that all SCHIP plans are covering MH/SA services, although these are typically inpatient and outpatient services as opposed to residential care and school-based health services. Coverage provided by non-Medicaid SCHIP plans, which generally follows a pattern of coverage characteristic of the private sector, is more restrictive than coverage provided by Medicaid-type plans. Also, turnover in SCHIP enrollment creates additional challenges in designing comprehensive, continuous services.

The Substance Abuse and Mental Health Services Administration (SAMHSA) has a special role in ensuring that children and adolescents receive appropriate MH/SA services and that an appropriate continuum of care is available to them. The agency has a congressional mandate to fund services for children and adolescents through the State block grant funding process. SAMHSA service demonstrations in 43 communities are providing a system of care that transcends traditional mental health services, such as

inpatient and outpatient services, and that includes innovative approaches, such as case management and alternatives to institutional care, for children with mental health problems.

To provide some guidance to policymakers about the likely cost of SCHIP MH/SA benefits, a comprehensive review of the literature on the prevalence, use, and cost of MH/SA services for children and adolescents was conducted. This review of the prevalence literature shows that many SCHIP-eligible children and adolescents need MH/SA services. Indeed, a relatively large percentage (i.e., about 15 percent) of low-income children and adolescents have some MH/SA problem. A smaller, but still substantial, percentage have a serious emotional disturbance (SED). In addition, poverty is associated with mental health problems; prevalence rates are somewhat higher for the poorest children than they are for higher-income children. The relationship, however, is not pronounced.

A review of the literature on service utilization shows that the most commonly received services are outpatient MH/SA

services. At least 1 in 20 of all children and adolescents in the United States uses such services each year. Furthermore, the use of MH/SA services is higher in the Medicaid population. The literature suggests that the use of MH/SA services in the SCHIP population—when coverage is offered—will be at least as high as it is in the general population. The use could resemble the higher rates seen in the nondisabled Medicaid population.

The literature on expenditures for MH/SA services for children and adolescents is sparse. It suggests that inpatient hospital, residential, and partial hospitalization services account for anywhere from half to three-quarters of the mental health expenditures for children and adolescents. Similar data are not available for substance abuse services.

This report synthesizes the wide range of information in the literature, in order to develop estimates of the likely cost of mental health benefits under SCHIP. Unfortunately, a similar analysis could not be performed for substance abuse services, due to a lack of data. Using parameters developed from the literature review, a range of costs was developed for alternative scenarios for prevalence, utilization, and expenditures per unit of mental health service. The simulations resulted in average estimated expenditures

for SCHIP mental health services that range from \$12 to \$23 per month, or \$149 to \$277 per year. The lower amount fits more comfortably within the likely range of SCHIP capitation rates. This amount comes from an alternative scenario that assumes a relatively low prevalence of SED in the SCHIP population. These results, presented in detail in the body of this report, show that a fairly broad range of mental health services can be supported under SCHIP, with some relatively small increases in capitation rates—if SCHIP plans pay approximately what Medicaid plans are currently paying. This is especially true if utilization of hospital services can be reduced, for example, by increasing the use of alternative services.

At present, SCHIP plans in many states, especially non-Medicaid plans, do not cover a wide array of MH/SA services for children and adolescents. The analysis shows, however, that states could cover, with a relatively small increased expenditure per month in many cases, a broader array of services under SCHIP. States may choose to do this because they already pay for many, and perhaps most, of these services under alternative state-financed programs, such as the public mental health system or school health programs.



Introduction

The mental health of America's youth is currently a prominent public concern, and policymakers are questioning how children and adolescents with mental health and substance abuse (MH/SA) problems can best be identified and served. At the same time, several Federal initiatives have converged to create an opportunity for making help for these children and adolescents more available and accessible. Demonstration programs such as the Child Mental Health Services Initiative, funded by the Center for Mental Health Services (CMHS) of the Substance Abuse and Mental Health Services Administration (SAMHSA) have taught us a great deal about how to establish systems of MH/SA care for children and adolescents. Developing in parallel to these programs is a set of rigorous research studies—such as the SAMHSA-sponsored study of adolescents with substance abuse disorders in managed care settings—that have revealed new information on the prevalence of MH/SA in children and adolescents, and on the utilization and cost of the services they obtain.

Another recent policy development in this area is the new State Children's Health Insurance Program (SCHIP), which, along with the Medicaid program, is a source of health insurance coverage for all low-income children and adolescents around the country. Since SCHIP plans are still under development, this report is intended to summarize what is currently known about the prevalence, utilization, and cost of MH/SA services for youth, and, given this knowledge, to examine implications for design and investigate what the cost of services might be under various alternative SCHIP programs.

Chapter II sets the policy framework for the study; a comprehensive review of the literature on prevalence, utilization, and cost follows in Chapter III. The final chapter

explains how a model developed under the study was used to estimate a range of costs that might be incurred by states, depending on which of the various coverage options are chosen for mental health services.

This report adds to the limited body of knowledge on coverage under SCHIP for MH/SA services. Because SCHIP programs are still evolving, and states expect to continue experimenting with coverage options and with the structure of their benefits, a better understanding of this issue is crucial. Coverage of mental health and substance abuse prevention services may also receive more attention as SCHIP enters its second or third year of implementation. As policymakers address the MH/SA aspect of SCHIP, it is hoped that this report will provide them with

current information on the prevalence of MH/SA problems among youth and on experience with the use and cost of MH/SA services.



Policy Background

Several sentinel indicators suggest that the mental health of American children and adolescents should be a major policy concern (Schoen et al., 1998; National Center for Health Statistics, 1995; Lamberg, 1998). Public concern has increased regarding the need to identify and serve children, adolescents, and their families who are at risk of mental health and substance abuse (MH/SA) problems so that their consequences can be avoided. For example, evidence of growing popular concern can be seen in a series of editorials in the *Hartford Courant* (March 1999), which stated, “Children with behavioral problems are going untreated, despite the state’s commitment to provide health insurance to all children...mental health care for children deserves heightened attention and a budget adequate to treat all who need help.”

A. MH/SA Service Systems

Until the 1980s, MH/SA services for children and adolescents were generally provided either in restrictive inpatient settings, such as mental hospitals, or through traditional outpatient therapy. Since that time, a broader continuum of services has been tested in the demonstration programs mentioned above, although rigorous long-term outcome studies are still generally lacking. Comprehensive reviews of the history of these demonstration programs are provided in other sources (Knitzer, 1993; Kutash, Duchnowski, and Sondheim, 1994; Friedman, 1991).

Several documents from the National Technical Assistance Center for Children’s Mental Health at Georgetown University (Stroul, 1993; National Resource Network for Child and Family Mental Health

Services, 1999) outline the core values of a comprehensive system for providing mental health services to children and adolescents. Such care should be family-centered, as well as child-centered, and community-based. Two other recent documents (Minugh, Jackson, and Cotter, 1998; Substance Abuse and Mental Health Services Administration, 1999a) outline the continuum of appropriate substance abuse treatment for adolescents. Many of the same treatment modalities (e.g., outpatient treatment and residential treatment) are indicated as for mental health treatment. In addition, the continuum should include family therapy, other mental health services, case management, and integration with other services (e.g., school and vocational training). According to Katz-Leavy, Tesauro, and Guthrie (1998), a well-rounded

system of mental health care transcends traditional services (e.g., inpatient and outpatient services) and includes innovative approaches (e.g., therapeutic foster care) for children with mental health problems. Institutional placement, particularly outside the community, should be avoided in favor of broader systems of care that (1) reserve inpatient and residential treatment for more severe and acute cases of mental illness and (2) focus on providing appropriate services in the least restrictive environment.

A broad array of services should be available to the children and adolescents who have the most serious MH/SA problems. These services may be highly individualized and tailored to the needs of a child and his or her family, such as intensive case management with small caseloads, school aides, in-home aides, vocational training, recreational activities, transportation, and crisis emergency services (Burns and Goldman, 1999; Katz-Leavy, et al., 1998). School-based services are important for identifying problems early, and they should be carefully coordinated with special education systems. Although studies show that special education programs often “under-identify” children with mental health problems, some communities have successfully integrated educational services and MH/SA services in the school environment (Woodruff et al., 1999). Community-wide planning (e.g., intra-agency coordination) can help to prevent duplication of services and ensure that children who are seen in various sectors of the public service system (e.g., mental health, substance abuse, child welfare, and juvenile justice) are served appropriately (Hodges, Nesman, and Hernandez, 1999).

B. Medicaid and Private Insurance Coverage for MH/SA Services

Medicaid is the Federal/State partnership for providing health insurance for certain low-income people. It covers children whose families receive or are eligible for Temporary Assistance to Needy Families (TANF) (previously known as Aid to Families with Dependent Children [AFDC]), disabled children receiving Supplemental Security Income (SSI), and—increasingly—children below the poverty level in certain age groups. These “poverty-related” expansions for children are being phased in by age group, and some older adolescents are still excluded. Other people who either come close to the Medicaid income guidelines or who have high medical expenses may also be covered as the “medically needy.”¹ Prior to SCHIP, many States also established their own special programs that provided coverage to higher-income groups of children. These programs were usually, but not always, administered by Medicaid.

Medicaid has relatively generous coverage for mental health benefits, compared with private insurance plans. Substance abuse services are covered less often, particularly when they are provided in nonclinical environments. For example, Medicaid requires coverage for inpatient hospital, outpatient hospital, and physician services, although the number of days or visits per year may be limited. Some other key services in an MH/SA service continuum (e.g., inpatient psychiatric, psychologist, clinic, and case management services) are optional under Medicaid, although the majority of States cover them for children. Although partial hospitalization/day treatment, a very

¹ Thirty-five States have medically needy programs.

intensive form of treatment that is increasingly used as an alternative to institutionalization, is not listed specifically as a service covered by Medicaid, many States cover it under outpatient care with a higher reimbursement rate. States may or may not elect to allow schools to be designated as Medicaid providers; thus, only sometimes is Medicaid reimbursement available for school health services. If schools are designated, services can be billed as clinic services.

The Early, Periodic, Screening, Diagnosis, and Testing (EPSDT) benefit of Medicaid is mandatory. EPSDT is a particularly important benefit for children with the need for MH/SA services, since it is mandatory for States to cover any needed MH/SA service that is identified in the EPSDT screening process, whether or not it is covered by the State's Medicaid plan. Consequently, States can use Medicaid to cover a very broad continuum of mental health services, and many States do (Congressional Research Service, 1993). Another important measure of Medicaid's generosity is that there is no cost sharing for children or lifetime limit on the total cost of services.

Despite the generous benefit package, one of the features of Medicaid that makes it problematic as a steady source of insurance coverage is that a child is eligible only while his or her family meets the eligibility criteria for the program. For example, Ellwood and Lewis (1999) found that 23.5 percent of children enrolled in MediCal (California's Medicaid program) in January 1995 were no longer enrolled by December of the same year; in Florida, the turnover was twice as high (52.9 percent). For children in the poverty-related expansion groups, turnover was even greater, with approximately 10 percent of children entering and exiting the pro-

gram each month. Czajka (1999a), using the Survey of Income and Program Participation, found that 51 percent of the new spells of Medicaid enrollment beginning in fiscal year 1994 were for children who had previously been enrolled in Medicaid in either fiscal year 1993 or 1994. This movement into and out of the program can make it difficult to provide a continuum of services, because the child may lose coverage for mental health services when he or she exits Medicaid. Of course, some children, such as those with serious emotional disturbance (SED) who are enrolled in SSI, may not cycle on and off Medicaid in this manner. For example, in a sample of 60 adolescents with SED in Western Pennsylvania who were entitled to SSI and had been hospitalized, (K. J. Kelleher, personal communication, November 1999) found an average length of SSI enrollment of 6 years. There is currently limited research on this issue using data from more States or larger samples.

Benefit limits, cost sharing, and/or lifetime spending limits usually apply to MH/SA services in most private plans in contrast to Medicaid. The differential coverage of MH/SA services relative to physical health services has become a major public policy issue that has crystallized around a move toward "parity" between coverage of physical and mental health services. Most studies have shown that the cost of parity is relatively low (Sing and Hill, 1998; Sturm, 1997). Sing and Hill specifically studied the cost of parity for children. They found that full parity (i.e., equality in cost sharing and in benefits) would increase a privately insured child's premium by 7 percent in fee-for-service and preferred provider organizations, by about 5 percent in point-of-service

plans but only 0.8 percent in fully capitated managed care arrangements.

In the past several years, managed care has increasingly covered MH/SA services in both the public and private sector. According to a report by the SAMHSA Health Care Reform Tracking Project (1998), 34 States use managed care arrangements for Medicaid coverage of MH/SA services. States and employers can either “carve out” such services, managing them in a separate plan known as a carve-out plan, or “carve in” services, managing them in a single plan along with physical health care. Sometimes all or some services for selected populations (e.g., children with SED) are carved out. In some States (e.g., Delaware) the concept of a comprehensive continuum of care is being combined with managed care under Medicaid, since the goal of both approaches is to coordinate care and reduce rates of high-cost institutionalization (Holmes, 1997).

A recent study showed that utilization management for children leads to more denials of inpatient mental health days than for adults (Wickizer et al., 1999). Brisson and Frank (1999) also found a sharp drop in inpatient substance abuse service use after introduction of risk-based managed care. In another recent study (Peele, Lave, and Xu, 1999), less than .5 percent of enrollees in privately managed, behavioral carve-out plans reached inpatient benefit limits, but those enrollees reaching limits were significantly more likely to be children than adults. Consequently, when managed care is introduced, we can expect MH/SA hospitalization rates for children and adolescents to decline substantially.

An important state-by-state variation that may have implications for access to services

in managed care programs involves the handling of public MH/SA providers. Some States require that public providers be included in Medicaid managed care networks; in five States, public agencies actually administer the plans.²

C. The State Children’s Health Insurance Program (SCHIP)

In response to the persistent lack of health insurance among children and its impact on their health, Congress enacted SCHIP in 1997. Established as Title XXI of the Social Security Act, Congress authorized \$20 billion in Federal funds for health insurance expansions over 5 years. States can use these funds to cover low-income children who are not eligible for Medicaid and who are otherwise uninsured by expanding Medicaid, designing another insurance program, or combining these two approaches. The Federal match rate is generally higher than it is for Medicaid. For example, a State that pays 50 percent of the cost of services for Medicaid enrollees will pay only 35 percent for SCHIP enrollees. However, each State has a cap on the amount of Federal funds it will receive for SCHIP; there are no such caps for Medicaid.

Within broad guidelines, States have considerable flexibility in designing their SCHIP programs. For example, they can set income thresholds anywhere up to 200 percent of the Federal poverty level or up to 50 percent above their previous highest Medicaid income threshold. Even more generous

² Other reviews—for example Grazier and Eselius (1999); Simpson and Fraser (1999); Stroul et al. (1998); Riley, Rawlings-Secunda, and Pernice (1997); and Iglehart (1996)—further discuss the complex and evolving subject of managed care and its potential impact on children with mental health and substance abuse problems.

income levels are possible through income disregards (e.g., disregards for child care expenses or a portion of earned income).

Each SCHIP program must offer comprehensive insurance coverage, incorporating such benefits as inpatient, outpatient, physician, and well-child care services, including immunizations. Within certain Title XXI guidelines, States may establish premiums and copayments for all services except well-baby and well-child care and service provided to American Indian/Alaska Native children, as long as the total for those payments does not exceed 5 percent of a family's annual income. Families with incomes at or below 150 percent of the Federal poverty level may pay no more than the Medicaid level of copayments, which includes a cap of \$5 for office visits. Families with income greater than 150 percent of poverty may pay no more than 5 percent of their total income for cost-sharing required at the point of service. States expanding Medicaid coverage must offer the full Medicaid benefit package. States designing new programs must offer a benefit package that is comparable to one of three private benchmark insurance plans: (1) the Federal Employees Health Benefits Blue Cross standard option plan, (2) the State's employee health benefit plan, or (3) the health maintenance organization (HMO) with the largest number of commercially insured people in the State. Alternatively, States may develop a benefit package that differs from the benchmark but includes services that are actuarially equivalent to it. The only exceptions are grandfathered plans that were in place in New York, Pennsylvania, and Florida before the enactment of SCHIP. Of particular importance for this study, the SCHIP plan must include coverage that is equivalent to 75 percent of the actuarial

value of the benchmark plan for four specific services: prescription drugs, mental health, vision, and hearing.

Following the trends noted previously for State Medicaid programs, most SCHIP programs will use managed care arrangements to some extent, although only five States plan mandatory State-wide capitated arrangements. Three States (Florida, Connecticut, and Montana) enroll children with SED in special "carve-out plans"; other States (e.g., Vermont and South Carolina) exclude such children from capitated arrangements (Fox et al., 1999).

To ensure that States provide quality care under SCHIP, the Federal Government requires them to identify the goals of their program and to monitor performance according to the goals. States are required to use indicators, such as rates of preventive care use (including counseling), emergency room use, and immunizations, to demonstrate progress toward goals.

As of October 26, 1999, all States had submitted a SCHIP plan. Table II.1 shows which States have chosen which plans. Of the States (including the District of Columbia) with approved plans, 22 are expanding Medicaid, 16 have designed separate plans, and 13 are using a combination of both approaches (HCFA web page: www.hcfa.gov, October 26, 1999). In a combination approach, for example, a State may use a Medicaid expansion to cover some income groups (e.g., children up to 150 percent of the poverty level) and a separate approach (e.g., private insurance) to cover children from 150 to 200 percent of the poverty level. Some States began to expand Medicaid in late 1997, and most States began operating their SCHIP programs in 1998, although a few began operating in 1999.

Table II.1: Type of SCHIP Plan by State

<i>State</i>	<i>Type of Plan</i>			<i>State</i>	<i>Type of Plan</i>		
	<i>Medicaid Plan</i>	<i>Separate Plan</i>	<i>Combination</i>		<i>Medicaid Plan</i>	<i>Separate Plan</i>	<i>Combination</i>
Alabama			x	Montana		x	
Alaska	x			Nebraska	x		
Arizona		x		Nevada		x	
Arkansas	x			New Hampshire			x
California			x	New Jersey			x
Colorado		x		New Mexico	x		
Connecticut			x	New York		x	
Delaware		x		North Carolina		x	
District of Columbia	x			North Dakota	x		
Florida			x	Ohio	x		
Georgia		x		Oklahoma	x		
Hawaii	x			Oregon		x	
Idaho	x			Pennsylvania		x	
Illinois	x			Rhode Island	x		
Indiana	x			South Carolina	x		
Iowa			x	South Dakota	x		
Kansas		x		Tennessee	x		
Kentucky			x	Texas	x		
Louisiana	x			Utah		x	
Maine			x	Vermont		x	
Maryland	x			Virginia		x	
Massachusetts			x	Washington		x	
Michigan			x	West Virginia			x
Minnesota	x			Wisconsin	x		
Mississippi			x	Wyoming		x	
Missouri	x			Total	22	16	13

Source: HCFA web site, October 26, 1999.

SCHIP programs differ in many ways, including organizational structure, outreach and eligibility determination, income disregards and thresholds, benefit packages, and coordination with Medicaid. Describing these many variations is beyond the scope of this report. Comprehensive overviews of SCHIP appear in Rosenbaum et al. (1998); Fox, Graham, and McManus (1998); Fox et al. (1998); Verdier (1998); Gehshan and McDonough (1998); Ullman, Bruen, and Holahan (1998); Children's Defense Fund (1998); and Hearne (1998). Because the program is evolving rapidly, sources for very recent information are provided in Appendix B.

Enrollment in SCHIP was initially lower than expected, and many SCHIP applicants have been found to be eligible for Medicaid (Haremann, 1999). Pear (1999) reports in the *New York Times* that, of the \$4.2 billion allotted to the program for 1999, States will probably spend only about \$800 million. In testimony before Congress on April 29, 1999 (*Medicine and Health*, May 3, 1999a), however, HCFA staff reported that enrollment rates are increasing and that most States expect to spend their full SCHIP allotment, although not all this year. Another study, (Smith, 1999) using a telephone survey of States, showed that enrollment increased by 57 percent in the 6-month period from December 1998 to June 1999, rising from about 835,000 to over 1.3 million children.

Enrollment turnover is likely to be even greater for SCHIP than for Medicaid. Czajka (1999a, 1999b) found that the family income of about 75 percent of uninsured children is below 200 percent of the poverty level, making these children potentially eligible for SCHIP. He also found that over 80 percent of spells of uninsurance for children last less

than a year. Lin and Lave (1998) found that, in Pennsylvania's subsidized State program for children below 185 percent of the poverty level, children remained on the program an average of 10 months. Children in families with a higher income (i.e., families that paid premiums) stayed on the program only an average of 8 months. Consequently, we can expect that, in any given year, SCHIP eligibility status will change for many children, probably the majority of them.

Children who leave a SCHIP plan with a relatively liberal benefit structure (e.g., one with Medicaid benefits) can be expected to lose some benefits if they become privately insured through employer-sponsored coverage. Czajka (1999b) showed that 55.7 percent of children with families in the SCHIP income range (100–200 percent of the poverty level) had private employer-sponsored coverage in 1993, so about half the SCHIP population may cycle onto private insurance. At the same time, children in families whose income decreases, and who thus become Medicaid eligible, would cycle out of a private-like benefit package if they had enrolled in a State-designed SCHIP plan. In either case, the SCHIP population can be expected to experience extensive discontinuity in benefits. Those below 150 percent of the poverty level are more likely to cycle onto Medicaid, and those above that income level are more likely to cycle onto private insurance or no insurance.

In addition to this enrollment complexity, benefit structures are also more complex in SCHIP than in Medicaid. It is likely that MH/SA benefits will be more limited under SCHIP than under Medicaid's relatively generous benefit package, at least in States with State-designed plans. Although information on the MH/SA benefits offered under SCHIP

is not readily available in one central location, this report has merged information from several sources to describe these benefits in Appendix C. Benefit restrictions, such as day and visit limits, are also listed in Appendix C.

The table in Appendix C illustrates SCHIP's very wide range of benefits for MH/SA services.³ For example, hospital day limits vary from 15 days per year to an unlimited number of days, and limits on outpatient visits vary from a low of 20 per year to an unlimited number of visits. Limits, as expected, are more common in the State-designed plans, and they are also more common for substance abuse services than for mental health services.

States are also allowed to charge copayments for services, which is not allowed for children under Medicaid. Fox et al. (1998) analyzed the likely annual copayments under SCHIP and found that copayments for families with a child with a psychiatric disorder would be substantially higher than for other families. For example, a family with an income of 185 percent of the poverty level would spend only 0.11 percent of its income on copayments if the child did not have a chronic condition, 0.96 percent of its income if the child had a chronic physical condition, and 1.36 percent of its income if the child had a psychiatric disorder.

As mentioned, States that choose a private approach must ensure that mental health benefits are actuarially equivalent to 75 percent of the actuarial value of one of three benchmark plans: (1) the Federal Employees Health Benefits Blue Cross standard option

plan; (2) the State's employee health benefit plan; or (3) the HMO with the largest number of commercially insured people in the State. To the extent that the benchmark plans selected vary considerably across States in their MH/SA coverage, benefits will vary among States. Table II.2 provides data from a simulation by the Hay Group (Hustead and Plazinski 1997) to show how the actuarial value of MH/SA benefits would vary for privately insured children according to the different benefit structures selected by States.⁴ As shown, the actuarial value of the MH/SA benefits offered to children in these various plans ranges from \$60 to \$110 per year, and from 3.4 percent of all health insurance benefits to 6.3 percent of all benefits.

MH/SA services may be an even larger proportion of total expenditures for children in a Medicaid plan, due to more generous coverage. For example, in Georgia in 1992, such services represented about 10 percent of expenditures for children ages 6 to 14 (SAMHSA, unpublished data). Nationwide, McKusick et al. (1998) report that spending for MH/SA services in 1996 was about 8 percent of total personal health care spending for all ages. (Data are not separately available nationwide for children and adolescents.)

³ The table was created using a variety of existing data sources on SCHIP benefits. The data in the table were not verified by States and should be interpreted with caution.

⁴ The simulation was not based on data for the actual SCHIP population in these States, since SCHIP had not been implemented when the data were analyzed. Consequently, the absolute size of the actuarial value may change for SCHIP. However, the table does accurately reflect the range that could be expected across non-Medicaid SCHIP.

Table II.2: MH/SA Benefits and Expenditures for Selected SCHIP Plans

<i>Plan Name</i>	<i>State</i>	<i>Basic Benefits</i>	<i>Estimated Annual Expenditure for MH/SA</i>	<i>Percentage of Total Expenditures</i>
Blue Cross/Blue Shield (BC/BS) (Federal Employees Health Benefit Plan)	All	Inpatient: 100 days Outpatient: 25 visits SA=MH: ^a No	\$72	4.9
Indemnity Plus	Arizona	Inpatient: 30 days Outpatient: 20 visits SA=MH: Yes	\$82	5.2
PERSCare	California	Inpatient: 30 days Outpatient: 30 visits SA=MH: No	\$76	6.1
BC/BS State Preferred	Connecticut	Inpatient: 60 days Outpatient: 40 visits SA=MH: No	\$83	5.6
BC/BS Blue Select	Kansas	Inpatient: 60 days/ 30 days (self-referral) Outpatient: 25 visits SA=MH: Yes	\$94	6.3
State of North Carolina Comprehensive Major Medical Plan	North Carolina	Unlimited inpatient and outpatient SA=MH: No	\$110	6.3
Traditional Care	Utah	Inpatient: 30 days Outpatient: \$1,500 SA=MH: Yes	\$60	3.4
Source: E.C. Hustead and L. Plazinski, <i>Value of Benefits Offered in Benchmark Plans for State Children's Health Insurance Program (SCHIP)</i> (Washington, DC: The Hay Group, 1997).				
^a SA=MH: Substance abuse benefits are the same as mental health benefits.				

Because States are currently covering many MH/SA services under other State-funded programs, it remains to be seen how many of them will choose to fund some of those services using SCHIP. At least one State has already begun such a process. Beginning July 1, 1999, Arizona legislators cut funding for mental health services to non-Medicaid-eligible children by 25 percent, and raised the income level for its SCHIP program to 200 percent of the poverty level, in anticipation of SCHIP's covering MH/SA services for many children who are currently uninsured (*Mental Health Weekly*, July 21, 1999).

D. SAMHSA'S Role

The SAMHSA has a special role in ensuring that children and adolescents receive appropriate MH/SA services and that an appropriate continuum of care is available. For example, the Center for Mental Health Services (CMHS) funds service demonstration programs in 43 communities in 37 States. The Agency has a congressional mandate to fund services for children and adolescents with SED, substance abuse disorders, and other mental health problems through the State block grant funding process.

In their annual block grant-planning process, States are required to set aside a

portion of funds to serve children and adolescents with SED. SAMHSA uses a definition that is based on the presence of a mental disorder diagnosis and functional impairment (*Federal Register*, 1998). Similarly, the substance abuse block grant, which is administered by the Center for Substance Abuse Treatment (CSAT) funded about 7 percent of all public or private substance abuse treat-

ment in the United States in 1996 (Mark et al., 1998). These programs cover treatment for many adolescents, although not through a particular set-aside for adolescents. Consequently, and to varying degrees from State to State, an infrastructure is gradually evolving to provide some of the MH/SA services that have been shown to be desirable in the service demonstration programs.



Literature Review

A. Overview

Since little is known about the cost of mental health and substance abuse (MH/SA) services under State Children's Health Insurance Program (SCHIP) plans, this study is intended to estimate the range of likely costs for such services. Estimates in this report are based on a comprehensive review of the literature about similar services for other groups of children and adolescents. Literature in the following areas was examined:

- The prevalence of mental health problems and substance abuse in children and adolescents, and how this prevalence varies by age, income, and other factors.
- The utilization of various types of services designed to address MH/SA issues.
- The cost of individual types of services.

Information on these topics can be used to formulate assumptions that are then used to estimate the range of costs that might be incurred by a particular State, given alternative assumptions, according to the following formula:

$$\text{Pop} \times \text{Prev} \times \text{Svc} \times \text{Exp} = \text{Total Expenditures}$$
where:

Pop = Total population of children and adolescents

Prev = Prevalence (percentage of children and adolescents with a mental health problem)

Svc = Service utilization per person with a problem (percentage receiving services multiplied by units of service)

Exp = Expenditures per unit of service

More detail on the framework for the cost model that was developed as part of this project is provided in Appendix F.

B. Methods

To provide data upon which to base assumptions for each of the variables in the model, a search of the literature for previous studies on prevalence, utilization, and cost was conducted. This was done through two main vendors, DIALOG™ and FirstSearch™, selecting articles that specifically address children's mental health and substance abuse. The articles selected were published in the late 1980s and the 1990s. In addition to this material, reports and articles were identified during a series of telephone and in-person interviews conducted with experts in the field of children's MH/SA and were subsequently obtained. Project directors of selected SAMHSA-funded demonstration projects were also contacted, and original tables were obtained from two of them. Finally, both published and unpublished tables were obtained from various other sources.

C. Findings on Prevalence

Several recent studies have contributed to our understanding of the scope of diagnosable mental health conditions in children and adolescents. (Although age categories vary by study, children are generally defined as being younger than age 12, and adolescents are between the ages of 12 and 18.) The most widely accepted classification system for mental health conditions is the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), the most recent version of which is DSM-IV™ (American Psychiatric Association, 1994). The DSM includes special sections on childhood disorders, substance abuse disorders, and other mental health conditions that affect people of all ages.

Table III.1 displays findings from two major review articles and six recent empirical studies that examine the prevalence of mental health conditions in children and adolescents.¹ These studies distinguish between serious emotional disturbance (SED)—conditions that substantially limit a child's role or functioning—and other diagnosable conditions. Unfortunately, none of the studies separately addresses substance abuse disorders or shows the degree of overlap between, for example, adolescents with SED and with substance abuse disorders.

1. Review Articles

Two recent major reviews of the literature address the prevalence of SED and other mental health problems in children and adolescents. Friedman et al. (1996) found that the prevalence of any diagnosable mental

health disorder ranges from 13.3 to 49.5 percent of older children and adolescents, ages 9 to 17, depending on the instrument used to measure the disorder and the population studied. The authors found that the prevalence of SED among the same age group ranges from 9.1 to 18.7 percent. After considering such methodological issues as sample size for the study, the authors concluded that the national prevalence of SED among older children and adolescents falls between either 9 and 13 percent when functional impairment is measured with less restrictive criteria or between 5 and 9 percent when stricter criteria are used.

In a second article, Costello et al. (1998) reviewed data for a wider age range, ages 4 to 18, from five U.S. cities. They conclude that the prevalence of SED is somewhat lower than that identified by the Friedman analysis, ranging from 4.3 percent to 7.4 percent depending on the site.

2. Recent Empirical Studies

Data from six very recent large empirical studies conducted in the 1990s are also shown in Table III.1. The Great Smoky Mountain Study of Youth (GSMSY) was designed to study the need for and use of mental health services by children and adolescents. The study took place between 1992 and 1995 in western North Carolina, and included 4,500 children and adolescents between the ages of 9 and 13. The sample, randomly selected from the general population, was screened for mental health problems. The prevalence of any mental health diagnosis was 20.3 percent. Between 4 and 8 percent of the population was diagnosed with SED (Costello et al. 1996b), depending on the measure of impairment.

¹ Appendix D provides more detail on the various methods used in these studies and others to screen children and adolescents for MH/SA disorders. Because screening methods differ from study to study, prevalence estimates are not strictly comparable across studies.

Table III.1: Literature on the Prevalence of MH/SA Disorders in Children and Adolescents

<i>Study</i>	<i>Dates of Data Collection</i>	<i>Study Location</i>	<i>Sample Size/Age</i>	<i>Prevalence</i>
REVIEW ARTICLES				
Friedman et al. (1996)	Varies by study	Varies by study	Varies by study	13.3%–49.5% had a diagnosable disorder, depending on the population and the instrument; 9%–13% of children ages 9–17 had serious emotional disturbance (SED), using a less stringent definition of impairment; 5%–9% had SED, using a more stringent definition.
Costello et al. (1998)	Varies by study	Population-based samples in Boston, upstate New York, Pittsburgh, North Carolina, and Puerto Rico	Varies by study	4.3%–7.4% had SED depending on the site, with a median of 5.4%.
RECENT EMPIRICAL STUDIES				
Great Smoky Mountain Study of Youth	1992–1995	11 counties in western North Carolina	4,500 youths (ages 9, 11, and 13) were randomly selected from the community and screened for psychiatric problems	1,015 youths (20.3%) were identified as having mental health problems; from 4% to 8% had a serious emotional disturbance (SED) depending on the measure of impairment; children with public insurance had the highest rate of SED (22.2%), followed by children with no insurance (8.1%) and those with private insurance (4.3%).
Costello et al. (1996a)				
Costello et al. (1996b)				
Burns et al. (1997)				
Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study	GA: December 1991–July 1992 CT: January 1992–July 1992 NY: January 1992–June 1992 PR: October 1991–June 1992	Sites in Georgia, Connecticut, New York, and Puerto Rico	Random sample of community residents in each of the four sites; data collected on 1,285 child-adult pairs	32.1% of children and 32.6% of adolescents had a diagnosable mental health problem; poverty was related to the presence of mental conditions: 31.1% of children with Medicaid, 18.3% without insurance, and 11.6% with private health insurance had a disorder; depending on the definition, the percentage who met criteria for SED ranged from 3% to 22.6%; near-poor children (100–200% of poverty) had approximately the same prevalence of SED as poor children.
Leaf et al. (1996)			Georgia: 299 Connecticut: 312 New York: 360 Puerto Rico: 314	
Glied et al. (1997b)				
Narrow et al. (1998)			Children, ages 9–12: n=593 Adolescents, ages 13–17: n=692	
Lahey et al. (1996)				

RECENT EMPIRICAL STUDIES (continued)																																																				
Centers for Disease Control and Prevention (1996)	1995 Youth Risk Behavior Survey	United States	Probability sample of students in grades 9–12; n=10,904	8.7% of students attempted suicide during the year. The rate for girls was twice that for boys.																																																
Ciuro et al. (1994)	1988 National Health Interview Survey (Child Health Supplement)	United States	Probability sample of the civilian noninstitutionalized population of the entire U.S. 17,110 interviews were completed for children ages 0–17	<p>% of children, by age, with an emotional or behavioral problem:</p> <table><tr><td>Age</td><td>3–4</td><td>5–11</td><td>12–17</td></tr><tr><td>Gender</td><td></td><td></td><td></td></tr><tr><td>Male</td><td>4.6</td><td>14.5</td><td>20.4</td></tr><tr><td>Female</td><td>3.4</td><td>9.3</td><td>16.5</td></tr></table> <p>Income</p> <table><tr><td><10K</td><td>3.7</td><td>14.8</td><td>22.5</td></tr><tr><td>10–19K</td><td>5.9</td><td>14.6</td><td>19.9</td></tr><tr><td>20–34K</td><td>4.0</td><td>11.0</td><td>18.4</td></tr><tr><td>35–49K</td><td>4.0</td><td>11.7</td><td>19.5</td></tr><tr><td>50K+</td><td>3.4</td><td>11.0</td><td>17.4</td></tr></table> <p>Health Insurance</p> <table><tr><td>Medicaid</td><td>7.8</td><td>17.9</td><td>26.4</td></tr><tr><td>Private</td><td>3.2</td><td>11.6</td><td>17.9</td></tr><tr><td>None</td><td>5.0</td><td>9.6</td><td>17.4</td></tr></table>	Age	3–4	5–11	12–17	Gender				Male	4.6	14.5	20.4	Female	3.4	9.3	16.5	<10K	3.7	14.8	22.5	10–19K	5.9	14.6	19.9	20–34K	4.0	11.0	18.4	35–49K	4.0	11.7	19.5	50K+	3.4	11.0	17.4	Medicaid	7.8	17.9	26.4	Private	3.2	11.6	17.9	None	5.0	9.6	17.4
Age	3–4	5–11	12–17																																																	
Gender																																																				
Male	4.6	14.5	20.4																																																	
Female	3.4	9.3	16.5																																																	
<10K	3.7	14.8	22.5																																																	
10–19K	5.9	14.6	19.9																																																	
20–34K	4.0	11.0	18.4																																																	
35–49K	4.0	11.7	19.5																																																	
50K+	3.4	11.0	17.4																																																	
Medicaid	7.8	17.9	26.4																																																	
Private	3.2	11.6	17.9																																																	
None	5.0	9.6	17.4																																																	
Garland et al. (1998)	1996 to February 1999	San Diego, CA	1,850 children and adolescents ages 6–17; random sample of youth active in one of five service sectors in 1996–97	<p>Percent of children and adolescents with SED by sector:</p> <table><tr><td>Alcohol and Drug:</td><td>36.5</td></tr><tr><td>Child Welfare:</td><td>17.9</td></tr><tr><td>Juvenile Justice:</td><td>33.9</td></tr><tr><td>Mental Health:</td><td>43.9</td></tr><tr><td>Special Education for the Seriously Emotionally Disturbed:</td><td>50.6</td></tr></table>	Alcohol and Drug:	36.5	Child Welfare:	17.9	Juvenile Justice:	33.9	Mental Health:	43.9	Special Education for the Seriously Emotionally Disturbed:	50.6																																						
Alcohol and Drug:	36.5																																																			
Child Welfare:	17.9																																																			
Juvenile Justice:	33.9																																																			
Mental Health:	43.9																																																			
Special Education for the Seriously Emotionally Disturbed:	50.6																																																			
Halfon and Newacheck (1999)	1992–1994 National Health Interview Survey	United States	Probability sample of the U.S., 99,513 children, ages 0–17	The prevalence in school-aged children of parent-reported chronic disabling mental health conditions (excluding mental retardation and learning disabilities) was approximately 1%.																																																

Other information on the prevalence of mental health conditions comes from the four community MECA Studies (Methods for the Epidemiology of Child and Adolescent Mental Disorders), in which the researchers sought to assess mental disorders, develop procedures for describing the use of mental health services, and determine the relationship between the need for and use of services (Lahey et al., 1996). The MECA study, which took place between October 1991 and July 1992, was based on a random sample of 1,285 child-parent/guardian pairs from sites in Georgia, Connecticut, New York, and Puerto Rico, where sample members were interviewed to identify the presence of mental health conditions and level of functioning. In the MECA sample the prevalence of a diagnosable mental health condition was 32.1 percent in children (ages 9 to 12) and 32.6 percent in adolescents (ages 13 to 17) (Leaf et al., 1996).

It is important to consider the effect on the prevalence of SED when applying different cutoff scores for functional impairment. For instance, the prevalence of SED was 24.7 percent in the MECA sample when the Children's Global Assessment Scale (CGAS) score was 70 or less.² When the cutoff score for functional impairment was moved to 60 or less, the rate decreased to 12.8 percent, and when the cutoff was moved to 50 or less, the prevalence decreased even further to 6.2 percent (Friedman et al., 1996).

In the MECA studies, the prevalence of SED among the Medicaid population was higher than for the uninsured and privately insured. For example, approximately 31.1 percent of children in the sample who were

covered by Medicaid had a mental disorder, compared with only 11.6 percent of children with private insurance (Glier et al., 1997b). The rate for uninsured children fell between these extremes. More to the point for the SCHIP population, however, Glier et al. (1997b) found that poor (≤ 100 percent of the poverty level) and near poor (>100 percent and <200 percent) children did not differ in their prevalence of SED, suggesting that prevalence rates in the SCHIP population may be close to those in the Medicaid population.

In the nationally representative Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 1996) a startlingly high proportion of a large, nationally representative sample of students in grades 9 to 12 attempted suicide in 1995—8.7 percent. The rate was twice as high in girls as in boys. While some children who are not considered to have SED may actually commit suicide, the rate of suicide attempts may nevertheless indicate prevalence of emotional disorders.

Coiro, Zill, and Bloom (1994) highlight the relationship between the prevalence of emotional and behavioral disorders and age, income, and insurance status. In the Child Health Supplement of the 1988 National Health Interview Survey, a probability sample of the civilian noninstitutionalized population, 17,110 interviews were conducted with children between 0 and 17 years old (or with their parents). The researchers found that the percentage of children reporting an emotional or a behavioral problem increased with age: 4.6 percent of the parents of boys ages 3 to 4 years reported an emotional or behavioral problem, and the rate increased to 20.4 percent for boys ages 12 to 17. For girls in the same age groups, the corresponding rates were 3.4 percent and 16.5 percent.

² See Appendix C for further information on this instrument.

For all age groups, mental health problems were found to be consistently more common among boys than among girls.

Coiro et al. (1994) also report that emotional and behavioral problems were somewhat more common among poor children; however, the differences across income groups in their study were not large. For example, 22.5 percent of adolescents in the lowest family income category (<\$10,000 per year) reported an emotional or behavioral problem, while 17.4 percent in the highest income category (>\$50,000) reported such a problem. Coiro et al. (1994) also identify a higher reported rate of emotional and behavioral problems among children and adolescents covered by Medicaid than among those with either private or no insurance. For example, 7.8 percent of Medicaid children ages 3 to 4 reported an emotional or behavioral problem, whereas 5 percent of privately insured children in that age group reported such a problem. The same pattern is consistent in older age groups.

Garland, Hough, and Wood (1998) examined a random sample of youth who participated in programs in one of five service sectors: alcohol and drug treatment, child welfare, juvenile justice, mental health treatment, and special education for children with SED. The authors found that the prevalence of SED varied substantially across service categories, from 17.9 percent among the children in child welfare (who are generally younger than those in the other sectors) to 50.6 percent among those in special education children. A higher proportion of males was served in all sectors. It is important to note that this study is not population-based, but rather reflects the prevalence of SED among children in these five service systems. Consequently, the prevalence of SED is much

higher in these “treated” groups than in the general population.

Finally, Halfon and Newacheck (1999) combined data from the 1992, 1993, and 1994 National Health Interview Surveys to study the prevalence of disabling mental health conditions among children and adolescents. Disability was defined as either being unable to conduct the child’s major activity (i.e., generally attend school) or being limited in that activity. They found that about 1 percent of school-aged children and adolescents were reported as being chronically disabled due to one or more mental health conditions. (Although the authors also studied learning disabilities and mental retardation, these are excluded from the rate.) The authors note that this rate is lower than suggested by other prevalence studies, and they speculate that parents may be reluctant to report a mental health condition as the source of their child’s disability.

3. Types of Mental Health Problems

The literature also provides information on the types of mental health conditions that are diagnosed in children and adolescents (see Table III.2).³ The studies include both population-based samples, such as the GSMSY and MECA studies, as well as groups of more disturbed children in treatment settings. In the GSMSY, Costello et al. (1996b) found that, among the population of children with diagnosed mental health problems in their sample, the most common diagnoses were depression, anxiety, enuresis, tic

³ A more comprehensive review of the literature on the types of mental health conditions experienced by children is contained in Volume II of the report *Adolescent Health* by the U.S. Congress, Office of Technology Assessment (1991). Burns (1991) provides an overview of conditions for adolescents in treatment.

Table III.2: Literature on the Types of MH/SA Problems in Children and Adolescents

<i>Study Citation</i>	<i>Dates of Data Collection</i>	<i>Location</i>	<i>Sample Size/Age</i>	<i>MH/SA Disorders</i>
MENTAL HEALTH				
Barber et al. (1992)	1985–90	San Francisco	192 children and adolescents served in day treatment or in more restrictive levels of care by San Francisco County mental health services during a 6-week period.	Most common diagnoses: conduct disorder (27%) and affective disorder (24%); 4% prevalence of toxic psychosis from substance abuse
Burns, et al. (1993)	Year 1: October 1986–September 1987 Year 2: October 1987–September 1988 Year 3: October 1988–September 1989	Children and adolescents receiving mental health services under the CHAMPUS demonstration program in the Tidewater area of Virginia	Sample includes children and adolescents, ages 0–17, who presented for treatment; the sample size was 1,552 in Year 1, increasing to 1,801 in the first 6 months of Year 3	Most frequent disorders in all 3 years: adjustment disorder (33% of cases) and depression (20% of cases)
Bussing et al. (1998)	Spring semester of the 1995 school year	Medium-sized county school district in north Florida	Second through fourth graders in a special education program (n=722)	44% were diagnosed with ADHD
Chen and Kandel (1995)	1980, 1984, and 1990	New York State	Follow-up with 1,160 men, ages 34–35, previously interviewed as adolescents in 1971	Substance use begins early in life; use of alcohol and marijuana peaks in late adolescence
Cohen et al. (1993)	1975, 1983, and 1985	Upstate New York	Children, ages 1–10, from 975 families were sampled in 1975; 8 years later, follow-up interviews were conducted, and 725 families were re-interviewed; 2 years later, a third round of interviews was completed with 686 families	Girls had a higher prevalence of emotional disorders; prevalence of major depression was similar for adolescent boys and girls; boys had a higher prevalence of ADHD and conduct disorder
Great Smoky Mountain Study of Youth (Burns et al., 1995; Costello et al., 1996b)	1992–95	11 counties in western North Carolina	4,500 youths, ages 9, 11, and 13, were randomly selected from the community and screened for psychiatric problems	Most common diagnoses were depression, anxiety, enuresis, tic disorder, conduct disorder, oppositional-defiant disorder, and ADHD
Silver et al. (1992)	1985–86	Colorado, Wisconsin, New Jersey, Alabama, Florida, and Mississippi	Parents (n=740) and children ages 8–18 (n=812); half the children were from special education programs for SED, and half were from residential programs.	66% of the children in the study had conduct disorder
Singh et al. (1994)	July 1990–June 1991	Public teaching child and adolescent psychiatric hospital	250 children and adolescents admitted during fiscal year 1990–91, ages 6–18	Most frequently diagnosed disorders: disruptive disorders, including ADHD, and mood disorders

SUBSTANCE ABUSE				
Brook, et al. (1999)	1990 and 1995	East Harlem area of New York City	695 African-American and 637 Puerto Rican adolescents interviewed first at about age 14, and again 5 years later	Early marijuana use was associated with of various problem behaviors late in adolescence, including a doubling of the risk of subsequent marijuana and alcohol problems.
Morris et al. (1995)	1991	39 juvenile detention facilities in the United States	44 institutions were randomly chosen; 5 did not participate; all of the juveniles in each institution were surveyed; 1,801 juveniles, ages 16–18, responded	12.6% reported binge drinking.
National Institute on Drug Abuse (1996)	1995, Monitoring the Future	Probability sample of U.S. 8th, 10th, and 12th graders	8th grade: 17,708 10th grade: 17,285 12th grade: 15,876	8th Grade 10th Grade 12th Grade % Daily Use: Marijuana 0.8 2.8 4.6 Alcohol 0.7 1.7 3.5
National Institute of Justice 1991 (1992)		A random sample of juvenile arrestees	Birmingham, Cleveland, Denver, Indianapolis, Kansas City, Los Angeles, Portland, St. Louis, San Antonio, San Diego, San Jose, and Washington, D.C. n=3,760	11%–36% of juveniles tested positive for drugs, depending on the city.
Substance Abuse and Mental Health Services Administration (1998a and 1999b)	1996, National Household Survey on Drug Abuse	Probability sample of U.S. households	Members of the civilian noninstitutionalized population, ages 12 to 17; 13,831 completed adolescent interviews in 1994–96	3.7% of adolescents report 3 or more problems due to marijuana use; 4.3% of adolescents report 3 or more problems due to alcohol use; of adolescents with a high emotional problem score, 13.2% report being dependent on alcohol or drugs; of those with a high behavioral problem score, 17.1% are dependent.
Substance Abuse and Mental Health Services Administration (1996)	1996, Drug Abuse Warning Network	Representative sample of admissions to emergency rooms across the United States	Adolescents, ages 12–17	There were 89,164 emergency room admissions for drug reasons by adolescents, or 10.4% of all admissions.

disorder, conduct disorder, oppositional defiant disorder, and attention deficit hyperactivity disorder (ADHD).

Other studies also show that conduct disorder is one of the most commonly diagnosed disorders among children in treatment settings. Silver et al. (1992) found that 66 percent of children and adolescents who were either in a special education program for children with SED or in a residential treatment program had conduct disorder. Barber et al. (1992) found that 27 percent of the individuals in a sample of 192 children and adolescents served in a day treatment facility had conduct disorder.

ADHD is also a common diagnosis among children who receive mental health services. Bussing et al. (1998) found that 44 percent of second through fourth graders in a special education program were diagnosed with ADHD. Researchers note, however, that the criteria for diagnosis of ADHD—and, consequently, documented prevalence rates—vary widely across the country (LeFever, Dawson, and Morrow, 1999).

In addition to conduct disorder and ADHD, mood disorders are common among children and adolescents who present for treatment (Singh et al., 1994; Barber et al., 1992; Burns, Thompson, and Goldman, 1993). In the Burns, Thompson, and Goldman study, 20 percent of cases were reported to have a diagnosis of depression.

Cohen et al. (1993) found that mental health diagnoses differ according to gender. In their study, females had a higher prevalence of most emotional disorders than males. Males had a higher prevalence of disruptive disorders.

Information on the rate of substance abuse disorders among children and adolescents is less frequently reported in the litera-

ture; however, we know that substance use and abuse are prevalent among adolescents. Chen and Kandel (1995) report that use of alcohol and marijuana begins in early adolescence and peaks in late adolescence.

Substance abuse often accompanies other mental health problems in adolescents (Bukstein, Brent, and Kaminer, 1989). Brook, Balka, and Whiteman (1999) used longitudinal data from adolescents in New York City schools to show that early marijuana use increased the risk of having problems with alcohol and marijuana use in late adolescence.

Monitoring the Future is the most comprehensive nationwide prevalence study of substance abuse in adolescents (National Institute on Drug Abuse, 1996). Use of both marijuana and alcohol increases with age, and by late adolescence, there was evidence of dependence in some adolescents. About 5 percent of 12th graders used marijuana daily. Monitoring the Future also shows that, while alcohol use is much more common than drug use, with 80 percent of 12th graders having used alcohol at least once, dependence levels are similar to those for marijuana, with 4 percent reporting daily use. Rates of daily alcohol and marijuana use are about three times higher for boys than girls in the 12th grade (data not shown). While use of “hard” drugs is much rarer, the Monitoring the Future Study reports that, in 1995, 1.7 percent of 12th graders in the United States had used heroin at least once.

About 10 percent of annual emergency room department admissions for drug reasons are for adolescents (SAMHSA, 1996). Data from the National Household Survey on Drug Abuse (SAMHSA, 1998c) show that 3.7 percent of adolescents (ages 12 to 17) had at least three major problems associated with marijuana use, and 4.3 percent of

adolescents reported at least three major problems associated with alcohol use.⁴

Unfortunately, there are few studies from national probability samples to measure the prevalence of the dual diagnosis of MH/SA problems in adolescents. A single national prevalence study provides some insights into the intersection between mental health conditions and substance abuse among adolescents (SAMHSA, 1999b). In 1994, a comprehensive mental health checklist was added to the National Household Survey on Drug Abuse. By combining data from the 1994, 1995, and 1996 surveys, researchers were able to study 13,831 adolescents, ages 12 to 17, which is representative of the entire U.S. non-institutionalized adolescent population.

According to the survey, 13.2 percent of adolescents reported emotional problems and 16.8 percent reported behavioral problems. Of those with the highest emotional problem scores (corresponding, perhaps, to some definitions of SED), 13.2 percent reported being dependent on alcohol or drugs; dependence was 17.1 percent for those reporting the highest behavioral problems. Consequently, based on this survey, it can be concluded that approximately 15 percent of adolescents with SED are in need of substance abuse treatment in addition to their other mental health service needs.

Adolescents in the juvenile justice system and residential settings may have a higher prevalence of substance abuse. The drug use forecasting system of the National Institute of Justice (1992) reports that, depending on

the city, from 11 to 36 percent of male juvenile arrestees tested positive for drugs in 1991. Morris et al. (1995) found that 12.6 percent of older adolescents in juvenile detention reported binge drinking. In another study, fully 4 percent of children and adolescents in day treatment were reported to have experienced toxic psychosis as a result of substance abuse (Barber et al., 1992).

4. Summary

In summary, a large percentage of children and adolescents have an MH/SA problem. A smaller, but still substantial, percentage have SED. The prevalence of mental health problems is lowest among preschool children, rising during the school years and again during adolescence. Boys have a higher prevalence of both MH/SA problems. Since boys have more disruptive disorders than girls, their mental health problems may come more often to the attention of parents and schools.

Poverty is associated with mental health problems, and prevalence rates are somewhat higher for the poorest children than they are for higher-income children; however, the relationship is not pronounced. Consistently across studies, Medicaid-covered children and adolescents have higher rates of mental health problems than uninsured children and privately insured children.

The insurance-based data suggest that SCHIP-eligible children have a lower prevalence of mental health conditions than do Medicaid-eligible children; however, caution should be exercised in drawing this conclusion. The higher rates in Medicaid are partially due to the fact that some “near-poor” children with SED (i.e., those potentially eligible for SCHIP) are covered by Medicaid through its spend-down provisions since the cost of their services could make them

⁴ The types of problems included the following: (1) wanted or tried to cut down but couldn't; (2) built up tolerance; (3) spent a month or more on drug; (4) used a drug more than intended; (5) reduced important activities; (6) caused emotional or psychiatric problems; and (7) caused health problems.

Medicaid-eligible. Consequently, prevalence rates for SCHIP children are probably closer to Medicaid prevalence rates than the data initially suggest. This is confirmed by the findings from the MECA study that near-poor children have a similar prevalence of SED to poor children. However, this relatively high prevalence may not translate into equally high utilization of services (“treated prevalence”) due to low use historically in this group, as well as the continued qualification for SSI—and consequently Medicaid—among some of the SCHIP-eligible children.

Although information on substance abuse in adolescents is relatively sparse, it can be concluded that the problem affects many adolescents, with about 5 percent being dependent. Substance abuse may be their only problem or it may accompany another mental health diagnosis. About 15 percent of adolescents with SED have a co-occurring serious substance abuse problem.

D. Findings on Use of Mental Health Services

Understanding the mental health service utilization patterns of children and adolescents with SED and other mental health or substance abuse problems is critical to designing a system of care and to estimating the cost of such a system. Studying these utilization patterns also allows us to identify whether there is a difference in utilization by age, gender, income, or insurance status and consequently, what the use of services might be under alternative SCHIP coverage options.

This section presents findings from the literature on utilization rates (i.e., the percentage of children or adolescents who use a certain service) and the units of services (i.e., how many days or visits a child or adolescent uses) for a range of services including

the following: inpatient care, residential care, partial hospitalization, outpatient care, case management, school health, and pharmacy services.

1. Use of Any Mental Health Services

The broadest indicator of mental health service use is whether a child or adolescent used any mental health service in the past year. Generally, this measure is defined as any service for a mental health problem regardless of whether the service is provided by a mental health specialty provider (e.g., a mental hospital or a psychiatrist). Most studies show use rates for the entire population of children regardless of whether they have a mental health problem (see Table III.3). Sometimes this rate is referred to as “treated prevalence.”

Cunningham and Freiman (1996), using a national population-based sample—the 1987 National Medical Expenditure Survey (NMES)—found that only 5.1 percent of children ages 6 to 17 reported using a mental health service during the year. This rate is considerably lower than the use rate reported in the GSMSY and MECA studies, which included all service sectors. The difference is probably a result of the fact that not as many types of services (e.g., school health services) were identified by parents in the NMES, which was a health service use survey, as in the GSMSY and MECA studies. In any case, it is important to remember that use rates may vary dramatically depending on the method of data collection, the definition of mental health services, and the population studied.

The GSMSY and MECA studies provide population-based utilization information in selected communities. Farmer et al. (1999) report use in the GSMSY sample over the

Table III.3: Use of Any Mental Health Service by Children and Adolescents

<i>Study</i>	<i>Population</i>	<i>Percentage Using Mental Health Service in Year</i>												
ALL CHILDREN AND ADOLESCENTS														
Cunningham and Freiman (1996)	U.S. population-based sample, noninstitutionalized children, ages 6–17, 1987 (National Medical Expenditure Survey)	5.1% had health care use related to a mental health problem												
(GSMSY) Burns et al. (1995) Farmer et al. (1999)	Population-based sample western North Carolina ^a	Mental health service use from one of five sectors—mental health, education, health, child welfare, or juvenile justice: 21.1% Specialty mental health service: 8%												
MECA Study Glieb (1997a) Glieb (1997b)	Population-based sample, four communities ^a	Any mental health service: 17% Children with private insurance had the lowest use rates (16%); children with Medicaid had the highest rates (28%); children without insurance fell in between (20%)												
Unpublished SAMHSA data	Medicaid children and adolescents in Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin in 1993	<i>Range (Low State–High State)</i> <table> <tr> <th><i>Age</i></th><th><i>Males</i></th><th><i>Females</i></th></tr> <tr> <td>0–5</td><td>1.2–5.1%</td><td>0.9–4.0%</td></tr> <tr> <td>6–14</td><td>6.0–16.5</td><td>2.9–11.3</td></tr> <tr> <td>15–20</td><td>4.9–17.7</td><td>4.1–15.0</td></tr> </table> Children entitled to Medicaid through disability were at least twice as likely to have a mental health service as children entitled through AFDC/TANF or the poverty-related expansions, regardless of State, age, or gender	<i>Age</i>	<i>Males</i>	<i>Females</i>	0–5	1.2–5.1%	0.9–4.0%	6–14	6.0–16.5	2.9–11.3	15–20	4.9–17.7	4.1–15.0
<i>Age</i>	<i>Males</i>	<i>Females</i>												
0–5	1.2–5.1%	0.9–4.0%												
6–14	6.0–16.5	2.9–11.3												
15–20	4.9–17.7	4.1–15.0												
CHILDREN AND ADOLESCENTS WITH SED														
MECA Study (Narrow et al. 1998)	Population-based sample, four communities ^a	42%–78% with SED used any services, depending on the definition of SED												
(GSMSY) Burns et al. (1997)	Population-based sample, western North Carolina ^a	Percent using any Specialty Mental Health Service: No insurance: 37.1% Private insurance: 38.0 Public insurance: 44.4												
^a See Table III.1 for more detail on the study.														

first year of the study, finding a use rate of 21.1 percent for any mental health service. This was use of a very broad range of services not generally reimbursed by health insurance, including services by schools, child welfare, and juvenile justice. The rate dropped to 8 percent when only specialty mental health services were examined.

The GSMSY also provides utilization rates according to gender and poverty status—

19.2 percent of boys used a mental health service over a 3-month period, while 12.8 percent of girls used a service (Burns et al., 1995). These findings are consistent with the prevalence results, which showed a higher prevalence of mental health problems in boys. In terms of poverty status, 20.9 percent of children and adolescents who were poor used a mental health service over a 3-month period, while only 14.6 percent of the

non-poor did so. These data are also consistent with GSMSY findings on prevalence by poverty level (Costello et al., 1996a).

Glied et al. (1997b) used MECA study data to delineate the relationship between insurance coverage and service use. These researchers found that children who were covered by public insurance used mental health services at a rate of 28.4 percent per year, which is higher than the rates for children who were privately insured (16.1 percent) and those who were not insured (20.4 percent).

Unpublished SAMHSA data include utilization rates for mental health services for Medicaid children and adolescents in the following ten States in 1993: Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin. In all States, the percentage of children using any mental health service increased with age. For example, for the youngest group of boys (ages 0 to 5), use rates ranged from 1.2 percent to 5.1 percent, depending on the State. In the oldest group of boys (ages 15 to 20), use rates for any mental health service ranged from 4.9 percent to 17.7 percent. Use rates for girls were consistently lower than for boys in all age groups and States. The use of mental health services increased significantly between preschool and school-aged children.

In terms of differences related to eligibility groups, children and adolescents in all States entitled because of disability (i.e., children enrolled in SSI) had use rates at least twice as high as other children. Of particular relevance to SCHIP, children and adolescents who were entitled by income alone generally had lower use rates than the disabled or children or adolescents enrolled in Aid to Families with Dependent Children (now

Temporary Assistance to Needy Families; AFDC/TANF). This was not a consistent pattern across States, however, and the number of children entitled by income alone was small in the time period studied.

Not surprisingly, children and adolescents with SED have higher use rates. For example, in the MECA study, the rates for SED children and adolescents ranged from 42 to 78 percent using services in a given year, depending on the cut-off value for impairment that was used to define SED (Narrow et al., 1998). The GSMSY data also show that children with SED who have public insurance have higher use rates (44.4 percent) than those with no insurance (37.1 percent) and private insurance (38.0 percent) (Burns et al., 1997). These studies both demonstrate clearly that even children with the most severe conditions do not always receive services.

2. Inpatient Use

In addition to examining the use of mental health services as a whole, the use of individual services must be examined in order to understand which services are used most often by children and adolescents. It is especially important to measure the use of inpatient services (e.g., acute general hospitals, special units of acute hospitals, or psychiatric hospitals) because they are the most expensive mental health services; therefore, they will strongly influence the overall cost of services.

Table III.4 shows utilization rates for inpatient care from various studies. The table shows separate use rates for (1) all children and adolescents, (2) those with a mental health problem (in some studies these are all children/adolescents with any mental health service use), and (3) those with SED.

Table III.4: Use of Inpatient Mental Health Services by Children and Adolescents

<i>Study</i>	<i>Population</i>	<i>Percentage Using Inpatient Service in Year</i>	<i>Number of Inpatient Days</i>
ALL CHILDREN AND ADOLESCENTS			
Gresenz et al. (1998)	Children in private carve-out behavioral health care plans; 172,000 child dependents, 1995–1996	0–5 years: 0.0% 6–12 years: 0.1% 13–17 years: 0.8%	N/A
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM			
Agency for Health Care Policy and Research (1999)	Children and adolescents, ages 5–14, admitted to U.S. short-stay hospitals in 1996 (Hospital Cost and Utilization Project)	N/A	Average length of stay (in days) Diagnoses: Anxiety, somatoform, dissociative, and personality disorders 11.5 Other mental disorders 9.8
Bickman et al. (1995)	Fort Bragg Study 1988–93 Demonstration group: 6,033 children and adolescents, ages 5–17, in Fort Bragg, NC Comparison group: 2,869 children and adolescents in Fort Stewart, GA, and Fort Campbell, TN	Demonstration group: 8.3% Comparison group: 14.2%	Days per year Demonstration group: 37 Comparison group 33
Burns et al. (1993)	Children and adolescents, ages 0–17 receiving mental health services under a CHAMPUS demonstration in Tidewater Virginia during a 2 1/2-year period <i>Sample size</i> Year 1: 1,552 Year 2: 2,033 Year 3: 1,802 (first 6 months).	Year 1: 17.0% Year 2: 10.0% Year 3: 3.7% (6 months)	N/A
Buck (1997)	Nondisabled children in the Michigan and Tennessee Medicaid programs who used any mental health service in 1992 <i>Sample size</i> Michigan: 16,544 Tennessee: 10,992	Michigan: 7.7% Tennessee: 10.8% The rate of inpatient utilization and readmissions increased with age	Average length of stay Michigan: 60 Tennessee: 44

CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM (continued)				
Unpublished SAMHSA Data	Medicaid children and adolescents who were mental health service users in Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin in 1993	Age 0–5 6–14 15–20	Range (Low State–High State) 0.1–4.2% 0.5–13.8% 1.9–36.2%	Average length of stay (in days) Range (Low State–High State) Age Mean Median 1–5 2–20 2–20 6–14 10–67 9–50 15–20 8–40 6–18
Wright et al. (1995)	Categorically needy AFDC cash assistance children and adolescents in California and Michigan, who used any mental health or substance abuse service in 1992	California: Michigan:	4.0% 4.6%	Days per year California: 17 Michigan: 29
CHILDREN AND ADOLESCENTS WITH SED				
GSMSY (E. Farmer, personal communication 1999)	Population-based sample, western North Carolina ^a	19.2% of SED children within 100–200% of poverty used inpatient services		Days per year 20.4
(C. Walwraith, personal communication 1999)	166 children with SED ages 6–11 and 120 adolescents with SED, between ages 12–18, who participated in programs offered by the Baltimore, MD, CMHS demonstration program	6–11 years: 12–18 years:	8.4% 10.0%	Days per year 6–11 years: 21 days 12–18 years: 41 days
^a See Table III.1 for more detail on study. N/A = Not available				

Gresenz, Liu, and Sturm (1998) found differences in inpatient use according to age in a privately insured population, which consisted of 172,000 child dependents of employees in carve-out behavioral health care plans with limits on inpatient stays. The rates in this study are for all children and adolescents in the carve-out plan regardless of whether they had any mental health problems (i.e., population-based rates). Consequently, the rates are substantially lower than those found in the studies cited below, which focused specifically on children with known mental health problems. The authors found that the percentage of enrollees using inpatient services increased with age among children and adolescents. For example, no enrollees ages 0 to 5 used inpatient mental health services, but 0.1 percent of children ages 6 to 12 used inpatient services, and 0.8 percent of children ages 13 to 17 used services.

Bickman et al. (1995) studied children and adolescents using mental health services in a demonstration program for military families in Fort Bragg, North Carolina, between 1988 and 1993. The demonstration group consisted of 6,033 children ages 5 to 17 who sought care in the demonstration area, while the comparison group included 2,869 children who used mental health services in two comparison areas. The hospital service use rate in the demonstration area, where a broader range of services and case management were available, was 8.3 percent; in the comparison areas, it was 14.2 percent. Lengths of stay were comparable in both areas—37 days for the demonstration area and 33 days for the comparison areas.

In some studies the provision of alternative services appears to reduce the use of inpatient services among children and adoles-

cents. Burns, Thompson, and Goldman (1993) found a decrease in overall inpatient service use over a 3-year demonstration program in Virginia. In the first year of the demonstration, 17 percent of children using any mental health service accessed inpatient services. The rate fell to 10 percent in Year 2 and to 4 percent in the first half of Year 3. This decrease in the use of inpatient services was offset by an increase in the use of outpatient services.

Buck (1997) studied nondisabled children and adolescents who were continuously enrolled in Medicaid and who received Medicaid mental health services during 1990 in Michigan and Tennessee. In Michigan, 7.7 percent had at least 1 day of inpatient psychiatric care, and in Tennessee, 10.8 percent had at least 1 day of inpatient psychiatric care. The mean length of stay in both States was also quite high in this study, 60 and 44 days, respectively.

In the SAMHSA unpublished Medicaid data from 10 States, inpatient utilization rates increased with age in all States, but length of stay peaked in the middle group, ages 6 to 14, and declined again in older adolescents. The length of stay reflected in these data is lower than in some of the other studies reported here because the data in this study include only acute hospital stays, excluding long-term psychiatric hospital stays.

In another study, Wright, Smolkin, and Bencio (1995) examined Medicaid utilization rates in Michigan and California. The study population consisted of categorically needy children receiving AFDC who used Medicaid-covered alcohol, drug, and mental health services in 1992. Utilization rates for any inpatient hospital service were similar in both California (4 percent) and Michigan (4.6 percent). The average number of days of

inpatient care was lower in California (17.4) than in Michigan (29).

Since the studies by Buck (1997) and Wright et al., (1995) examined inpatient use in Michigan in approximately the same period, it is curious that inpatient use rates were substantially higher in the Buck study (both in the rate of use and the total days of care). This is partially due to the fact that Buck examined only continuously enrolled children, while Wright reported data for all children, many of whom were enrolled in Medicaid for only part of the year. It is also possible that there was a different categorization of services in the two studies, with more residential services included with the hospital services in the Buck study; this is also suggested by data reported later, which show a lower expenditure per day in the Buck study.

The two studies of SED children report rates of use of inpatient hospital services that are higher, but not dramatically so. The inpatient services reported in the GSMSY are for psychiatric hospitals, psychiatric units of general hospitals, drug/alcohol/detox inpatient units of hospitals, and admissions to medical inpatient units for psychiatric reasons. In the GSMSY data, 19.2 percent of children and adolescents with SED who lived in households that were between 100 and 200 percent of poverty had an inpatient stay (E. Farmer, personal communication, 1999). The inpatient utilization rate for children and adolescents with SED who had no mental health insurance coverage was similar, at 18.9 percent. This particular group of SED children and adolescents is similar to those eligible for SCHIP, and in the GSMSY the group had higher inpatient hospital use rates than those insured by Medicaid (11.3 percent) and the privately insured (6.0 percent) (Burns et al., 1997).

In the Baltimore Center for Mental Health Services (CMHS) demonstration program, which serves children with SED, the utilization of inpatient mental health services was similar for the 6-to-11 and 12-to-18 age groups: 8.4 percent and 10 percent, respectively (C. Walwrath, personal communication, 1999). The number of days in inpatient facilities, however, increased with age in the demonstration site, in contrast to the 10-State Medicaid data, which reported fewer hospital days for older adolescents. In the CMHS program, admitted children ages 6 to 11 spent an average of 21 days in inpatient care, while admitted adolescents, ages 12 to 18, spent 41 days. The study includes only 166 children and 120 adolescents, so the results should be interpreted with caution.

3. Residential Service Use

In addition to receiving care in inpatient hospitals, children and adolescents may also receive care in out-of-home settings, variously called residential treatment centers, group homes, or therapeutic foster care. The utilization of such services varies according to the types of service offered in a community and whether services are covered by health insurance. Appendix C shows that a substantial majority of States cover some form of residential care under their SCHIP plan. This is much more common under Medicaid plans than State-designed plans.

In Table III.5, two studies by Burns and others show utilization rates for mental health residential treatment services for children and adolescents. The first (Burns et al., 1999) is a longitudinal study that took place between 1994 and 1997 in North Carolina; it examined the impact of a Medicaid managed care mental health carve-out pilot program (Carolina Alternatives) on service use

Table III.5: Use of Residential Care by Children and Adolescents

Study	Population	Percentage Using Residential Care	Number of Days of Residential Care per Year per Person Using Care
ALL CHILDREN AND ADOLESCENTS			
Burns et al. (1999)	Medicaid children and adolescents, ages 0–17, in a managed care demonstration (Carolina Alternatives) and a Fee For Service (FFS) comparison group	Group homes (%)	Group homes
		Year	Year
		Demo.	Demo.
		Comp.	Comp.
		1994	1994
		1995	1995
		1996	1996
		1997	1997
		0.3	99
		0.6	135
		0.5	116
		0.5	141
		0.1	249
		0.3	159
		0.4	141
		0.5	143
		Therapeutic foster care (%)	Therapeutic foster care (%)
		Year	Year
		Demo.	Demo.
		Comp.	Comp.
		1994	1994
		1995	1995
		1996	1996
		1997	1997
		0.2	81
		0.0	83
		0.3	121
		0.1	106
		0.3	95
		0.1	133
		0.2	127
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM			
Bickman et al. (1995)	Demonstration and comparison groups of children and adolescents treated for mental disorders in military families ^a	Demonstration area	Demonstration area
		Residential treatment center: 1.2%	Residential treatment center: 64 days
		Intermediate residential: 5.7%	Intermediate residential: 116 days
		Comparison area	Comparison area
		Residential treatment center: 3.3%	Residential treatment center: 141 days
Burns et al. (1993)	CHAMPUS demonstration in Tidewater area of Virginia ^a	Year 1:	N/A
		Year 2:	
		Year 3:	
		3.5%	
		0.3%	
		0.2% (6 months)	
CHILDREN AND ADOLESCENTS WITH SED			
(C. Walwirth, personal communication, 1999)	166 children with SED, between ages 6–11, and 120 adolescents with SED, between ages 12–18, who participated in programs offered by the Baltimore, MD, CMHS demonstration program	Age	Age
		6–11	6–11 years: 118 days
		12–18	2–18 years: 96 days
		Income	Income
		<\$15,000	<\$15,000: 104 days
		>\$15,000	>\$15,000: 37 days
		Use Rate (%)	
		3.6	
		7.5	
		Use Rate (%)	
		5.6	
		2.8	
^a See Table III.4 for more detail. N/A = Not available			

compared to a fee-for-service program. The researchers examined Medicaid claims for youths ages 0 to 17. Use rates for services in group homes and therapeutic foster care were low: fewer than 1 percent of children in both groups used either of them. (Both the demonstration and comparison groups include all Medicaid-eligible children, whether or not they had a mental health problem.) Use rates for services in group homes increased between 1994 and 1997 for children and adolescents in both groups, and they were somewhat higher in the Carolina Alternatives population early in the period. The authors note that the increased use of these services in the public sector managed care demonstration coincided with a decrease in the use of inpatient hospital services. The length of stay in other residential care (group homes and therapeutic foster care) was quite long, generally exceeding 100 days per person receiving services.

The second study (Burns et al. 1993) shows a decrease in the use of residential mental health treatment services over the 3 years of their study of a CHAMPUS managed care demonstration program for children and adolescents in military families living in the Tidewater area of Virginia. The percentage of children and adolescents admitted to residential treatment centers declined from 3.5 percent in the first year of the study to 0.2 percent in the first half of the third year, reflecting a trend toward community-based outpatient treatment in the demonstration area.

Bickman et al. (1995) also studied children in military families who were receiving some mental health services in two areas, one with a demonstration that offered a broader range of mental health services than were offered in standard CHAMPUS bene-

fits. This included an alternative to traditional residential treatment centers covered under CHAMPUS (called “intermediate care”). These researchers found different utilization rates for residential treatment services by site. Children treated in the demonstration area used traditional residential treatment at a rate of 1.2 percent, while children in the comparison area used residential treatment at a rate of 3.3 percent; however, 5.7 percent of children and adolescents in the demonstration area also received intermediate residential treatment. So demonstration children and adolescents had higher rates of residential care overall, but, as shown earlier (see Table III.4), their rates of inpatient care were lower.

In the CMHS demonstration in Baltimore, the use of residential care increased with age among a population of children and adolescents with SED (C. Walwrath, personal communication, 1999). For example, for children ages 6 to 11, the rate of residential service use was 3.6 percent, while for adolescents, ages 12 to 17, the rate of service use was 7.5 percent. However, stays were longer for children. An examination of utilization by income in the Baltimore demonstration shows that children and adolescents in lower-income households used residential treatment services at a higher rate (5.6 percent) than children and adolescents in higher-income households (2.8 percent). Children in lower-income households also stayed longer in residential settings (104 days) than those in higher-income households (37 days).

4. Partial Hospitalization

Another service that has become an alternative to expensive inpatient hospital services is partial hospitalization, in which a child or adolescent is in an intensive treatment pro-

gram during the day and returns home at night. A majority of States do cover this service under SCHIP, although State-designed SCHIP plans rarely do (see Appendix C). As with residential care, utilization rates for partial hospitalization services are lower than for inpatient hospital services (see Table III.6).

Although the use of partial hospitalization remains low, it may be on the rise for children and adolescents, especially in managed care settings. Use rates for partial hospitalization by Medicaid-eligible participants in a Medicaid managed care mental health carve-out plan and the fee-for-service comparison group were very low from 1994 to 1997 (Burns et al., 1999).

Gresenz et al. (1998) also found low utilization of partial hospitalization among privately insured children, but the use of such services increased with age. Although no young children ages 0 to 5 used this service, 0.4 percent of adolescents did. In the CHAMPUS demonstration study by Burns et al. (1993), partial hospitalization was introduced as a new service option, but it was never used heavily during the demonstration. By the third year, the partial hospitalization utilization rate was only 0.6 percent among children and adolescents who were using some mental health service, in contrast to the 3.7 percent who used inpatient care (see Table III.4).

One final study shows that the use of partial hospitalization services among Medicaid children and adolescents in California and Michigan in 1992 was also low (Wright et al., 1995). Of all users of alcohol, drug, and mental health services, only 0.1 percent in California and 1.6 percent in Michigan used partial hospitalization during the year.

The days of care in partial hospitalization are lower than those reported in studies of

residential care, and they are roughly comparable to days of care reported for inpatient hospital settings. In the Burns et al. (1999) study, the number of days of care ranged from 42 to 61, depending on the year and setting. The length of stay was somewhat shorter in the managed care setting than in the fee-for-service setting. In the California Medicaid program (Wright et al., 1995), the average number of days of partial hospitalization in the year was 89, while the average in Michigan was much lower at only 18 days.

5. Outpatient Service Use

The most common mental health services are outpatient visits to psychiatrists, psychologists, social workers, and other mental health providers (see Table III.7). Outpatient services are widely used both as a primary treatment modality for children and adolescents with less severe problems and in combination with other forms of treatment for those with more severe disorders. The percentage of all children ages 6 to 17 using outpatient mental health services was 4.8 percent in the study by Cunningham and Freiman (1996), using data from the 1987 National Medical Expenditure Survey. This rate is similar to the percentage using any mental health service in the same study (see Table III.3).

In a managed care setting where there was an incentive for outpatient care in contrast to inpatient care, Burns et al. (1999) found that there was a slight increase (from 7.1 to 7.7 percent) in the rate of outpatient service utilization among children and adolescents in the Medicaid mental health carve-out demonstration sites. In the comparison area, use was similar to the national level reported by Cunningham and Freiman (1996) at the beginning of the study period (4.6 percent)

Table III.6: Partial Hospitalization for Children and Adolescents

Study	Population	Percentage with Partial Hospitalization			Number of Days of Partial Hospitalization per Year per Person Using Care		
ALL CHILDREN AND ADOLESCENTS							
Burns et al. (1999)	Medicaid children and adolescents, ages 0–17, in a managed care demonstration (Carolina Alternatives) and an FFS comparison group	Year	Demo.	Comp.	Year	Demo.	Comp.
		1992	0.2%	0.1%	1992	50	39
		1994	0.3%	0.1%	1994	46	42
		1995	0.4%	0.1%	1995	49	44
		1996	0.4%	0.1%	1996	46	61
		1997	0.3%	0.2%	1997	43	50
Gresenz et al. (1998)	Children in private carve-out behavioral health care plans; 172,000 child dependents in 1995–96	0–5 years		0.0%	NA		
		6–12 years		0.0%			
		13–17 years		0.4%			
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM							
Burns et al. (1993)	Children and adolescents, ages 0–17, receiving mental health services under a CHAMPUS demonstration in Tidewater, Virginia, during a 2 1/2-year period	Year 1:		0.9%	N/A		
		Year 2:		1.2%			
		Year 3:		0.6%			
	Sample size						
	Year 1: 1552						
	Year 2: 2033						
	Year 3: 1802 (first 6 months).						
Wright et al. (1995)	All categorically needy AFDC cash assistance children and adolescents in California and Michigan, 1992, who used mental health or substance abuse services	California:		0.1%	California:		89 days
		Michigan:		1.6%	Michigan:		19 days

Table III.7: Use of Outpatient Mental Health Services by Children and Adolescents

Study	Population	Percentage Using Outpatient Care				Average Number of Visits per Year for Those With a Visit			
ALL CHILDREN AND ADOLESCENTS									
Burns et al. (1999)	Medicaid children and adolescents, ages 0–17, in a managed care demonstration and an FFS comparison group	Year 1994 1995 1996 1997	Demo 7.1% 9.0% 7.8% 7.7%	Comp 4.6% 5.4% 5.9% 6.4%	Year 1994 1995 1996 1997	Demo. 10 11 12 13	Comp. 10 10 9 9		
Cunningham and Freiman (1996)	U.S. population-based sample, noninstitutionalized children, ages 6–17, 1987 (National Medical Expenditure Survey)	Any outpatient service: 4.8% Specialty outpatient services: 2.7%				N/A			
Gresenz et al. (1998)	Children in private carve-out behavioral health care plans 172,000 child dependents, 1995–96	0–5 years: 6–12 years: 13–17 years:		3.2% 5.0%		0.8% N/A			
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM									
Bickman et al. (1995)	Fort Bragg Study: Demonstration and comparison groups of children and adolescents treated for mental disorders in military families	Demonstration area: Comparison area:		87% 87%		Demonstration area: Comparison area:		26 9	
Burns et al. (1993)	Tidewater area of Virginia*	Year 1: Year 2: Year 3:	79% 89% 95%			N/A			
Wright et al. (1995)	All categorically needy AFDC cash assistance children and adolescents in California and Michigan, 1992	California: Michigan:	86% 83%			California: Michigan:		7 6	

*See Table III.4 for more detail.

N/A = Not available

^aSee Table III.4 for more detail.

N/A = Not available

and increased to 6.4 percent in the final year (1997).

Gresenz et al. (1998) also found that privately insured children had use rates that were similar to those found by Cunningham and Freiman (1996) and that service use increased with age. Children ages 0 to 5 used few outpatient services during the 12-month period, while 5.0 percent of children ages 13 to 17 used such services.

Not surprisingly, among children who use any mental health services, outpatient services are very common. In the Fort Bragg study (Bickman et al., 1995), 87 percent of children and adolescents used outpatient services in both the demonstration and comparison areas. The number of outpatient visits was greater, however, among the demonstration population, which averaged 26 visits, compared with nine visits for the comparison group. (Recall that inpatient service use was higher in the comparison group in this study; see Table III.4.)

In the study by Burns et al. (1993) of children ages 0 to 17 receiving mental health services under a CHAMPUS demonstration program, outpatient use increased over the 3 years of the study from 79 percent in the first year to 95 percent in the first 6 months of the third year. The rate of service utilization for inpatient services and residential treatment services decreased over the same 3 years in this study (see Tables III.4 and III.5). Consequently, it is important in all comparisons of services to take note of the service continuum in a particular geographic area (i.e., the alternatives to institutionalization that are available) because such factors will drive the mix between outpatient and inpatient use, as will the type of managed care reimbursement approaches that are in place.

Wright et al. (1995) found that, in California and Michigan, the utilization rates of outpatient services in Medicaid children and adolescents were similar to those in the CHAMPUS demonstrations—86 percent among Medicaid-eligible alcohol, drug, and mental health services users in California and 83 percent in Michigan. The number of annual visits in California (7) and in Michigan (6), however, was lower than the average number of visits in the Fort Bragg study.

6. Case Management

Case management is designed to link a child or an adolescent to the mental health service system. Case management should also ensure that social issues having an impact on the child or adolescent's mental health status are being addressed along with his or her mental health problems. Such services may vary greatly in type and intensity, and they are often not covered as a separate service by insurance, although many Medicaid programs now cover them. Consequently, SCHIP plans, especially those that are built around Medicaid, may cover them. (Appendix C shows that 25 States currently cover case management under SCHIP.)

Table III.8 shows the utilization rates of case management in three demonstration programs that offered case management as a covered service. Burns et al. (1999) found an increase in the utilization of case management services in both the managed care demonstration group and the fee-for-service comparison group in the North Carolina demonstration they evaluated. The case management utilization rate increased in the demonstration group, from 3.1 percent of all children and adolescents in 1994 to 3.8 percent in 1997. The rate in the fee-for-service

Table III.8: Use of Case Management by Children and Adolescents in Three Mental Health Demonstration Programs

<i>Citation</i>	<i>Population</i>	<i>Percentage Using Case Management</i>	<i>Number of Units per User</i>
ALL CHILDREN AND ADOLESCENTS			
Burns et al. (1999)	Medicaid children and adolescents, ages 0–17, in a managed care demonstration and an FFS comparison group	Case management service use (%):	Hours/user of case management services
		Year	Year
		1994	1994
		1995	1995
		1996	1996
		1997	1997
		Demo.	Demo.
		3.1%	12
		3.7%	15
		3.6%	15
		3.8%	6
		Comp.	Comp.
		0.9%	15
		1.4%	13
		1.8%	13
		2.3%	14
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM			
Bickman et al. (1995)	Fort Bragg Study: Children and adolescents, 0–17, receiving mental health services under a CHAMPIUS demonstration in Tidewater Virginia during a 2 1/2-year period	22.2%	Case management encounters: 19
	Sample size		
	Year 1: 1552		
	Year 2: 2033		
	Year 3: 1802 (first 6 months).		
CHILDREN AND ADOLESCENTS WITH SED			
(C. Walwraith, personal communication, 1999)	166 children with SED, ages 6–11, and 120 adolescents with SED, ages 12–18, who participate in programs offered by the Baltimore, MD, CMHS demonstration program	Age 6–11 years: 12–18 years:	Percent 72.3% 64.3% N/A
N/A = Not available			

comparison group, however, also rose from 0.9 percent in 1994 to 2.3 percent in 1997.

In the Fort Bragg demonstration, which included only children and adolescents with mental health problems, use of case management was higher—22.2 percent of children and adolescents. Those using case management averaged 19 case management encounters per year. In the Baltimore CMHS demonstration, which included children and adolescents with SED, 72.3 percent of children ages 6 to 11 used case management services; the rate for adolescents, ages 12 to 18, was somewhat lower but still high (64.3 percent). Low-income children and adolescents used case management at a higher rate than higher-income children and adolescents (data not shown).

7. School-Based Health Services

School-based health services are also being increasingly covered by Medicaid; about half of SCHIP plans are also covering these services (as shown in Appendix Table C.1). Such services (e.g., counseling) can help to identify mental health problems early and provide referrals to other services. The results from several studies of school-based mental health services are shown in Table III.9.

Two studies in Colorado show that health clinics in schools frequently provide mental health services. In the first study, among 3,818 students who used school health centers over a 38-month period, 25 percent had mental health visits. The mean number of mental health visits per user per year was six (Anglin, Naylor, and Kaplan, 1996). Kaplan et al. (1998) also studied 240 adolescents who had access to a school-based health center. Thirty-six percent used school-based mental health or substance abuse services.

The mean number of mental health visits per adolescent increased slightly over time in this study. It appears that if school-based health services are provided, many children and adolescents will seek them out, possibly preventing more severe mental health problems.

The reported use of school-based mental health services was somewhat lower in the population-based MECA study; 15.3 percent of children ages 9 to 12 used school-based mental health or substance abuse services, while 13.2 percent of adolescents, ages 13 to 17, used these services (Lahey et al., 1996).

Using the GSMSY data, (E. Farmer, personal communication, 1999) also found school-based services for mental health problems to be relatively common in that community. Among children and adolescents with diagnosable mental health problems, 11.7 percent used such services, and 55.3 percent of children and adolescents with SED visited a school counselor, social worker, or psychologist. The mean number of visits for children and adolescents was eight. Equally important, 8 percent of children without a mental health diagnosis used school-based mental health services illustrating the preventive orientation of these services (E. Farmer, personal communication, 1999). Among children and adolescents with SED, the utilization rate for school-based services is the same (60 percent) for those without mental health insurance coverage as for those with Medicaid (Burns et al., 1997).

8. Pharmacy Services

Drug therapy is also used in the treatment of mental health problems for children and adolescents. As shown in Appendix C, all States cover pharmacy services in their SCHIP plans. Small copayments (generally ranging from \$1 per prescription to \$5) are

Table III.9: Use of School-Based Mental Health Services by Children and Adolescents

<i>Study</i>	<i>Population</i>	<i>Rate of Annual Service Use</i>	<i>Number of Visits per User per Year</i>
ALL CHILDREN AND ADOLESCENTS			
Anglin et al. (1996)	3,818 students who used services provided by school health centers in Denver, CO, in 1991–92	25% of the sample had mental health visits during 38 months	6
Kaplan et al. (1998)	240 adolescents, ages 14–18, in Colorado in 1990–93; 240 of the adolescents had access to a school health center	36% of adolescents using the school health center used mental health or substance abuse services	1990–91: 7 visits 1991–92: 7 visits 1992–93: 8 visits
MECA Study (Lahey et al., 1996)	Population-based sample in four communities ^a	Four MECA sites combined 9–12 years: 15.3% 13–17 years: 13.2%	N/A
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM			
GSMSY (E Farmer, personal communication, 1999)	Population-based sample in western North Carolina	Children and adolescents between 100 and 200% of the poverty level	Children and adolescents between 100 and 200% of the poverty level
		11.7%	8 visits
CHILDREN AND ADOLESCENTS WITH SED			
GSMSY (E Farmer, personal communication, 1999)		Children and adolescents between 100 and 200% of the poverty level	Children and adolescents between 100 and 200% of the poverty level
(Burns et al., 1997)		55.3% By insurance coverage: None 60% Private 51% Medicaid 60%	9 visits
N/A = Not available			

relatively common, however, especially in State-designed plans.

Cunningham and Freiman (1996) found that, in 1987, 1.2 percent of children ages 6 to 17 who reported using mental health services were given prescription drugs for their problems (see Table III.10). A much higher rate of pharmacy use occurs among those with serious mental health problems, especially children with ADHD. A study by Bussing et al. (1998) found that 35 percent of the children at high risk for ADHD in a special education program were receiving medication therapy. The percentage of children who received such treatment varied by gender and insurance coverage. More boys than girls received medication treatment, and uninsured children were less likely to receive treatment. Also, students with emotional disorders were more likely to receive medications than were children with learning disabilities.

Silver et al. (1992) studied a group of disturbed children and adolescents; half of the study group was in special education programs for children with SED, and the other half was in residential treatment programs. Over 42 percent received prescribed medicine. Wright et al. (1995) studied Medicaid children and adolescents who used alcohol, drug, and mental health services in 1992 and found that 17 percent in California and 29 percent in Michigan were prescribed medication for their mental health problem. These children and adolescents averaged five prescriptions for the year in both States. On the other hand, 46 percent of those with ADHD in California and 68 percent in Michigan used prescribed medication in the same study (Wright et al., 1995). ADHD children received approximately five prescriptions each in California, and seven prescriptions

each in Michigan, only slightly more than for all children with mental health pharmacy services.

Several reviews presented at a recent national conference show that a very high percentage of children with ADHD receive prescription drugs, and this percentage rose in the 1990s. For example, the National Ambulatory Medical Care Survey, which includes children ages 0–17 who were seen by a physician and diagnosed with ADHD, showed an increase in prescriptions for stimulants for ADHD, from 54.8 percent in 1989 to 75.4 percent in 1996 (Hoagwood, 1998). From 1990 to 1993 alone, outpatient visits related to ADHD increased from 1.6 million to 4.2 million per year, and 90 percent of the children making the visits received prescription medication for ADHD (Greenhill, 1998). According to Kelleher (1998), 89 percent of the children who are prescribed psychotropic drugs in a primary care setting are children with ADHD. Consequently, SCHIP plans can expect to cover drug therapy for many—perhaps most—SCHIP children with ADHD. Those drugs, however, are likely to be prescribed in primary care settings and will possibly be outside mental health coverage limits.

9. Summary

This literature review has shown that children and adolescents use various mental health services. The most common are outpatient mental health services (e.g., visits to primary care doctors, mental health specialists, and school health services), with at least one in 20 of all children and adolescents in the United States using such services each year. The literature suggests that the use of MH/SA services in the SCHIP population, when coverage is offered, will be at least as high as it is in the general population. It will

Table III.10: Use of Mental Health Pharmacy Services by Children and Adolescents

<i>Study</i>	<i>Population</i>	<i>Percentage of Children and Adolescents Using Mental Health Pharmacy Services</i>	<i>Average Number of Prescriptions</i>
ALL CHILDREN AND ADOLESCENTS			
Cunningham and Freiman (1996)	1987 population-based sample of U.S. noninstitutionalized population (National Medical Expenditure Survey)	1.2% of all children ages 6–17 were prescribed medication	N/A
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH PROBLEM			
Bussing et al. (1998)	202 second–fourth grade students in special education classes in Florida who were at high risk of ADHD in 1995	35% received medication therapy. Boys had higher rates of medication than girls. Children with health insurance had higher rates than those without health insurance.	N/A
Silver et al. (1992)	812 children and adolescents in six States in special education or residential programs	42.1% of children received psychotropic medications	N/A
Wright et al. (1995)	All categorically needy AFDC cash assistance children and adolescents in California and Michigan, 1992, who used any mental health or substance abuse service	<p><i>All</i></p> <p>California: 17% Michigan: 29%</p> <p><i>With ADHD</i></p> <p>California: 46% Michigan: 68%</p>	<p><i>All</i></p> <p>California: 5 Michigan: 5</p> <p><i>With ADHD</i></p> <p>California: 5 Michigan: 7</p>
N/A = Not available			

probably more closely resemble the higher rates of use seen in the Medicaid population.

The literature also shows that, when certain alternatives to traditional services are offered (e.g., residential care, case management, and school health services), the use of inpatient hospital services is lower. Information on SCHIP coverage (see Appendix C) shows, however, that many SCHIP plans, particularly State-designed plans, do not cover such alternative services. Also, data show that the SCHIP-eligible population (i.e., low-income uninsured children and adolescents) has historically used inpatient services for mental health problems at relatively high rates. This is probably because the SCHIP population has had fewer alternatives. Such patterns of use could continue after SCHIP implementation, even if alternatives are covered, at least for some period of time.

E. Findings on Use of Substance Abuse Services

Although substance use generally begins in adolescence, users of this age may not have yet been treated for substance abuse or developed a dependence on drugs, a fact which highlights the importance of preventive services. The literature on the use of substance abuse treatment services by adolescents is limited.⁵ In general, studies show that the use of substance abuse services is lower than for mental health services, but that there are some similar patterns in the use of services. In particular, utilization increases with age, and utilization rates are higher for males than for females. Although Medicaid coverage of substance abuse treatment has traditionally been more restrictive than for

mental health treatment, all States but one (i.e., Pennsylvania) cover some form of substance abuse treatment (i.e., generally detoxification and outpatient treatment) in their SCHIP plan (see Appendix C). Limits on the length of treatment are common, especially in the State-designed plans.

The *National Household Survey on Drug Abuse, 1996* (SAMHSA, 1998c) provides information on the use of substance abuse services for the entire U.S. noninstitutionalized population ages 12 and above (see Table III.11). As mentioned, service use increases with age; 1.1 percent of individuals ages 12 to 17 report having received substance abuse treatment, compared with 2.6 percent of individuals ages 18 to 25. Unpublished SAMHSA data on Medicaid enrollees show that their use rates for substance abuse services are similar to that of the entire U.S. population. About 1.5 percent of Medicaid adolescents, ages 15 to 20, used substance abuse services covered by Medicaid. This figure underrepresents the actual use rate, because non-Medicaid services (e.g., those covered by the State block grant) are not included. Although we previously showed that children and adolescents entitled to Medicaid by income alone use mental health services at a lower rate than the AFDC/TANF population, the Medicaid children and adolescents who qualify by income alone use substance abuse services at a higher rate. Consequently, it is possible that the use rate for SCHIP enrollees may be relatively high when substance abuse services are covered by SCHIP plans. Not many poverty-related enrollees who use substance abuse services are in the SAMHSA data, however, so results should be interpreted cautiously.

Table III.11 cites some studies that provide a partial picture of the types of services

⁵ Since few children use substance abuse services, this discussion is generally restricted to use by adolescents.

Table III.11: Use of Substance Abuse Services by Adolescents

Study	Population	Service Use			
ALL ADOLESCENTS					
Anglin et al. (1996)	3,818 students who used services provided by school health centers in Denver, CO, in 1991–92	8% visited a substance abuse counselor for an average of seven visits per person			
SAMHSA (1998c)	Civilian noninstitutionalized population, ages 12 and older in 1996 (National Household Survey on Drug Abuse)	Age	Any Substance Abuse Service		
		12–17	1.1%		
		18–25	2.6%		
Unpublished SAMHSA Medicaid Data (1999)	Medicaid children and adolescents in Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin in 1993	Any Substance Abuse Service: Eligibility Group			
		Age	AFDC	Disabled	Other
		6–14	0.2%	0.3%	0.7%
		15–20	1.5	1.8	4.3
		Data are combined across States due to small numbers			
Unpublished data from the Treatment Episode Data Set (TEDS) maintained by SAMHSA (numerator of rates) and census data (denominator of rates) (1998)	U.S. population, ages 15–24, admitted to publicly funded treatment in 1995	Annual Admissions per 10,000			
		Type of Svc	Age		
			15–17	18–24	
		Inpt/Detox	0.2	1.2	
		Residential	6.9	6.8	
		Outpatient	46.3	41.8	
ADOLESCENTS WITH ANY SUBSTANCE ABUSE SERVICE					
Unpublished SAMHSA data (1999)	Medicaid children and adolescents who used substance abuse services in Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin in 1993	Age	% Using Inpatient Detox		
		6–14	6.3		
		15–20	11.8		
SAMHSA (1998d)	Clients aged <18 years in substance abuse treatment programs across the U.S. in 1990 (n=156)	13.6% of clients in outpatient treatment were adolescents. Percentages for other treatment types were residential (5.0%), inpatient (4.3%), and methadone (2.1%)			

used by adolescents. Preventive substance abuse services, such as counseling and referrals, are often provided by comprehensive school-based health centers. Anglin et al. (1996) found that, of 3,818 students who used services offered by school health centers in Denver, Colorado, 8 percent of them visited a substance abuse counselor, with an average of seven visits per student.

SAMHSA's *Treatment Episode Data Set (TEDS)*, 1995 (SAMHSA, 1998e) is another valuable source of data on the use of substance abuse services. Because the data underrepresent admissions to privately

funded substance abuse treatment programs, the use of all substance abuse services is underrepresented to an unknown, but substantial, degree. Consequently, these data are better for observing the relative frequency of various types of treatment among adolescents and how the use of services varies by age and other characteristics.

Using the TEDS information and 1995 U.S. population estimates from the Census Bureau (www.census.gov/population/www/estimates/st_sasrh.html), we calculated admission rates to substance abuse treatment by age, gender, race, and type of service. At

least in the facilities represented in the TEDS data, adolescents use inpatient substance abuse services, such as detoxification, much less often than residential and outpatient services. Across all types of services, the rate of admission for males was more than twice as high as for females; there was little variation in admission rates by race/ethnicity in adolescents, ages 15 to 17 (data not shown).

The Services Research Outcomes Study surveyed clients in public and private substance abuse treatment facilities in 1990. The focus was on drug, rather than alcohol, treatment. At that time 13.6 percent of outpatient (nonmethadone) clients were under age 18, but only 5 percent or less of clients in other treatment types were adolescents (SAMHSA, 1998d), confirming that most adolescents receive drug treatment in outpatient settings.

In terms of the difference in use rates by age, we show data for a group of those ages 15 to 17, and another group, ages 18 to 24. Inpatient admission rates are six times as high for the older group, but use rates for residential and outpatient services did not differ greatly by age.

Unpublished SAMHSA data from 10 States also show the proportion of child and adolescent substance abuse service users who had an inpatient stay. The average across all States was 6.3 percent for those individuals ages 6 to 14 and 11.8 percent for those individuals ages 15 to 20. It seems that, once adolescents access substance abuse treatment services, the percent having inpatient use is similar to that for mental health services (see Table III.4).

In summary, although the data are very limited, it seems that the use of substance abuse services in the SCHIP eligible population is substantially lower than for mental

health services. National data suggest that slightly more than 1 percent of adolescents use such services during a year and that the majority of their services are outpatient services. As with mental health services, it appears that many adolescents will use substance abuse services in a comprehensive school health setting even when they do not use formal treatment.

F. Findings on Expenditures

The cost of services is measured here by a proxy (i.e., program expenditures). Many of the comprehensive community-based studies mentioned earlier (e.g., GSMSY) do not provide information on expenditures for MH/SA services for children and adolescents, so the literature covered here is limited primarily to several Medicaid program studies. To the extent that the prevalence of MH/SA problems, service use, and payment rates in SCHIP are mirrored in the Medicaid program, the data from the Medicaid studies should provide some approximation of SCHIP expenditures for MH/SA services. On the other hand, to the extent that the prevalence of MH/SA problems is lower in the SCHIP population, or that coverage is more limited, the Medicaid data on expenditures act as an upper boundary of what could be expected under SCHIP.

Table III.12 shows the average expenditures per child or adolescent across four studies. Burns et al. (1999) examined expenditures for an entire Medicaid population of children and adolescents in North Carolina between 1994 and 1997. Consequently, these expenditures could be translated into monthly capitation rates under a managed care program. The authors found that, in both the capitated demonstration sites (ten area programs) and fee-for-service compari-

Table III.12: Average Annual Expenditures for MH/SA Services for Children and Adolescents

Study	Population	Mental Health	Average Annual Expenditure			Total
			Substance Abuse	All Other		
ALL CHILDREN AND ADOLESCENTS						
Burns et al. (1999)	Medicaid children and adolescents, ages 0–17, in a managed care demonstration (Carolina Alternatives) and an FFS comparison group in 1997	Demonstration Group: 1992 \$164 1997 \$399 Comparison Group: 1992 \$124 1997 \$390 Data are for MH/SA combined	N/A	N/A	N/A	
Average expenditures rose in both the demo. and comp. areas between 1992 and 1997, at a greater rate in the comp. areas						
CHILDREN AND ADOLESCENTS WITH A MENTAL HEALTH OR SUBSTANCE ABUSE PROBLEM						
Cunningham and Freiman (1996)	U.S. population-based sample, noninstitutionalized children, ages 6–17, 1987 (NIMES)	1987 \$430 1993 \$653 (Inflated at 7.2% per year from 1987 to 1993)	N/A	N/A	N/A	
Unpublished SAMHSA Data	Medicaid children and adolescents who used mental health services in Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin in 1993	Age 0–5 \$735 6–14 \$2,020 15–20 \$2,916	Age 0–5 — 6–14 \$ 24 15–20 \$260	Age 0–5 \$1,557 6–14 \$ 969 15–20 \$2,252	10-State Median Age 0–5 \$2,507 6–14 \$2,919 15–20 \$4,999	
Wright et al. (1995)	Categorically needy AFDC cash assistance children and adolescents in California and Michigan, 1992, who used any mental health or substance abuse service	California: \$1,162 Michigan: \$747 Data are for MH/SA combined	N/A	California: \$747 Michigan: \$684	California: \$1,909 Michigan: \$1,706	
N/A = not available						

son sites (30 area programs), average annual expenditures per child/adolescent enrollee for MH/SA services in 1997 were similar at \$399 and \$390 per year, respectively. This translates to approximately \$33 per child per month.

A recent study by Holahan, Rangarajan, and Schirmer (1999) showed that the median monthly Medicaid capitation rate was \$64 in 1998 for children ages 1 to 13, \$134 for females ages 14 to 44 (excluding maternity expenditures), and \$121 for males ages 14 to 44. Also, referring back to Table II.2, which shows simulated annual expenditures from a privately insured population for selected State-designed SCHIP plans, we see that the highest State expenditures were only \$110 per year in North Carolina, where inpatient and outpatient benefits were not assumed to be limited. Differences between these data and the expenditures in Burns et al. (1999) are probably explained by both higher use rates in the Medicaid population and a wider range of benefits covered (e.g., case management and other services). If the Burns et al. data are restricted to MH/SA inpatient and outpatient services, the average annual expenditure is much closer to the simulated private sector data for North Carolina, or only \$128 per year (\$10.67 per month). However, without these alternative services, inpatient expenditures would have undoubtedly been higher to an unknown degree.

If we look only at persons with an MH/SA problem, the range of average annual expenditures is similarly wide (see Table III.12). Examining children and adolescents nationwide regardless of income or payment source, Cunningham and Freiman (1996) found an average annual mental health expenditure of only \$430 for children and adolescents with any mental health

expense in 1987. We inflated this estimate to 1993 dollars to make it comparable to the data from other studies. Using a rough approximation of 7.2 percent inflation in mental health expenditures annually, which was the average annual increase in MH/SA services between 1986 and 1996 (McKusick et al., 1998), this amounts to \$653 per child/adolescent with any mental health service use in 1993. Table III.12 shows that in that year, average mental health expenditures for children and adolescents ages 6 to 14 who used mental health services was a median of \$2,020 across the 10 State Medicaid programs in the SAMHSA database, or over three times as high as the Cunningham and Freiman (1996) data for all children and adolescents. Expenditures for the older adolescents, ages 15 to 20, were even higher in the SAMHSA data at \$2,916. Again, this is probably explained both by higher use and broader coverage under Medicaid. The SAMHSA database also includes disabled children. Wright et al. (1995) found lower average annual expenditures in California (\$1,162) and Michigan (\$747) among AFDC cash assistance children and adolescents in 1992.

The unpublished SAMHSA data also allow us to examine substance abuse treatment expenditures for substance abuse service users separately from mental health expenditures for mental health service users. Even in the older group of adolescents, ages 15 to 20, where utilization of substance abuse services was shown to be higher than for younger adolescents, average annual expenditures for substance abuse services were much lower (a median of \$260 across the 10 States) than expenditures for mental health services (\$2,916).

The SAMHSA Medicaid data and Wright et al. (1995) also provide valuable information on non-MH/SA service expenditures for those with a mental health or substance abuse problem. For the children and adolescents, ages 6 to 14, the median other expenditures were \$969 per year across States.

Mental health expenditures for children and adolescents are also distributed differently across types of services depending on the study (see Table III.13). (Comparable information is not available for substance abuse services.) However, there is greater agreement when selected services are grouped. For example, when hospital, residential, and partial hospitalization services are grouped, the proportion of expenditures attributed to those services varies from 40 percent in the California Medicaid program in 1992 to 52 percent in Michigan in the same year, with the Burns et al. (1999) and Bickman (1995) studies showing proportions between those extremes. The remaining services—outpatient, case management, school health, pharmacy, and other unspecified services—account for the remaining 48 to 60 percent of services. These data differ from those reported for 1986 by the U.S. Congress, Office of Technology Assessment (OTA) (1991). That study found that inpatient or residential care accounted for fully 74 percent of total mental health expenditures for children and adolescents ages 10 to 18, while other types of care accounted for only 26 percent of expenditures. It is likely that these differences in the patterns of expenditures are partially due to wider coverage of alternative services under the Medicaid and CHAMPUS programs than in the general population. Another explanation is changed utilization patterns since the OTA study, a time period in which innovative

alternatives to institutionalization have developed in some communities.

A final important source of variation in total program expenditures is the average payment per unit of service. Although this information is not widely reported in the literature, we did find some information on expenditure per unit for selected services (see Table III.14). For example, payment per day for hospital stays varied from \$213 in Tennessee in 1992 (Buck, 1997) to \$762 for the youngest children in the unpublished SAMHSA 1993 data (10-State median). In their study of alcoholism treatment (not specifically for adolescents), Johnson, Roman, and Blum (1998) found that a nationally representative sample of for-profit hospitals charged, on average, \$752 per day, while nonprofit hospitals charged only \$475 for equivalent services.⁶ A small study by Ichinose, Kingdon, and Hernandez (1994) showed an average payment of \$102 per day for residential stays in 1992–93, less than half the hospital expenditures in the other studies. The Johnson et al. (1998) study examined charges per day for partial hospitalization, which varied from \$216 to \$331 per day depending on the setting, about half the hospital charges per day from the same study. Outpatient visit payment rates vary from \$36 per visit in Michigan Medicaid to \$81 in for-profit hospital-based treatment. In another study Wright et al. (1995) showed an average of \$19 per prescription for both California and Michigan in 1992.

Payment rates vary by payor, reimbursement system, and type of provider. If the SCHIP plan uses capitated arrangements, such rates will depend on payment rates negotiated between plans and providers.

⁶ These are undiscounted charges, and actual payment rates will generally be lower.

Table III.13: Distribution of MH/SA Services Expenditures by Type of Service for Children and Adolescents

<i>Study</i>	<i>Population</i>	<i>Percent of Total Expenditures per Service</i>						<i>Total</i>
		<i>Inpatient Hospital</i>	<i>Residential</i>	<i>Partial Hospitalization</i>	<i>Outpatient</i>	<i>Case Management</i>	<i>Pharmacy</i>	
Burns et al. (1999)	Medicaid children and adolescents, ages 0–17, in a managed care demonstration (i.e., Carolina Alternatives) and an FFS comparison group	Demonstration: 13% Comparison: 18%	Demonstration: 31% Comparison: 24%	Demonstration: 3% Comparison: 2%	Demonstration: 19% Comparison: 9%	Demonstration: 13% Comparison: 6%	N/A	Demonstration: 100% Comparison: 100%
Wright et al. (1995)	Categorically needy AFDC cash assistance children and adolescents in California and Michigan, 1992, who used any mental health or substance abuse service	California: 40% Michigan: 53%	N/A	N/A	California: 32% Michigan: 17%	California: 3% Michigan: 14%	California: 1% Michigan: 3%	California: 100% Michigan: 100%
Bickman et al. (1995)	Demonstration and comparison groups of children and adolescents treated for mental disorders in military families	24%	Residential treatment center: 5% Intermediate Residential: 20%	N/A	28%	1%	N/A	100%
N/A = Not available								

Table III.14: Average Expenditures per Service Unit for Selected Mental Health Services for Children and Adolescents

Study	Population	Average Expenditure per Service Unit				Pharmacy Claim
		Inpatient Day	Residential Day	Partial Hospitalization Day	Outpatient Visit	
Buck (1997)	Nondisabled children in the Michigan and Tennessee Medicaid programs who used any mental health service in 1992	Michigan: \$247 Tennessee: \$213	N/A	N/A	N/A	N/A
California Medical Assistance Commission (1999)	All California hospitals subject to Medicaid selective contracting in 1998.	\$862	N/A	N/A	N/A	N/A
Ichinose et al. (1994)	25 youths in group homes in Ventura County, California, between September 1, 1992 and June 30, 1993	N/A	\$102	N/A	N/A	N/A
Johnson et al. (1998)	Nationally representative sample of 450 private sector substance abuse facilities: Number For profit/hospital based: 78 Not for profit/hospital based: 232 For profit/freestanding: 88 Not for profit/freestanding: 52	Charges: For profit/hospital based: \$752 Not for profit/hospital based: \$475	N/A	Charges: For profit/hospital based: \$331 Not for profit/hospital based: \$240 For profit/freestanding: \$317 Not for profit/freestanding: \$216	Charges: For profit/hospital based: \$81 Not for profit/hospital based: \$78 For profit/freestanding: \$69 Not for profit/freestanding: \$59	N/A
Unpublished SAMHSA Data	Medicaid children and adolescents who used mental health services in Delaware, Georgia, Kentucky, Maine, Missouri, Tennessee, Utah, Vermont, Washington, and Wisconsin in 1993	Age 0–5 6–14 15–20	10-State Median \$762 \$468 \$468	N/A	N/A	N/A
Wright et al. (1995)	Categorically needy AFDC cash assistance children and adolescents in California and Michigan, 1992, who used any mental health or substance abuse service	California: \$657 Michigan: \$390	N/A	N/A	California: \$63 Michigan: \$36	California: \$19 Michigan: \$19
N/A = Not available						

In summary, the literature on expenditures for MH/SA services for children and adolescents is sparse. Inpatient hospital, residential, and partial hospitalization services account for half to three quarters of the mental health expenditures for children and adolescents. The literature also suggests that

offering a wide range of MH/SA services under SCHIP could require an increase in the capitation rates currently offered in Medicaid managed care programs if similar rates are adopted by SCHIP plans. This issue is explored further in the following chapter.

IV. Cost Modeling

The review of the literature in Chapter III shows that many State Children's Health Insurance Program (SCHIP)-eligible children and adolescents need mental health and substance abuse services, and that many will use these services if they are covered by SCHIP plans. The review of SCHIP benefits (see Appendix C) also points out that all SCHIP plans are covering some mental health and substance abuse (MH/SA) services, although these are much more often inpatient and outpatient services than other types of services such as residential care, school health services, or case management.

In this chapter we attempt to synthesize the wide range of information in the literature review, in order to develop estimates of the likely cost of mental health benefits under SCHIP. We also simulate a range of those costs under alternative scenarios for prevalence, utilization, and payment per unit of service.

A. Overview

One goal of this study is to develop a simple simulation model for mental health services that can be used to synthesize literature-based estimates of prevalence, utilization, and expenditures under alternative scenarios.¹ An overview of this model is provided in Appendix E. Data from the comprehensive

literature review form the parameters for the model.

In addition to providing a method of synthesizing information from the literature review, the model is also designed to be a user-friendly tool for State officials as they develop ranges of cost estimates for their SCHIP plans. For example, the model parameters can be modified to simulate the likely consequences of a higher or lower prevalence of mental health problems in a particular State. Readers who would like to explore the model in more detail are encouraged to refer to Appendix F for a workbook, which shows how to obtain the model from the Internet and how to use the model to develop State-specific cost estimates.

Those who are using the model must do so cautiously for the following reasons:

- Estimates are based on data from studies of non-SCHIP programs, generally Medicaid and CHAMPUS, because data on actual SCHIP experience are not yet available.

¹ After examining the results from the literature review of substance abuse prevalence, use, and expenditures, the Center for Substance Abuse Treatment has decided at this time to defer developing estimates for substance abuse services. There are few data on the proportion of adolescents who need services and who actually use them under alternative conditions.

- Data for many services (especially nonhospital services) are sparse; also, age-specific and diagnosis-specific data are not always available.
- Estimates are usually based on a single or a few studies.
- The conditions in a particular State may differ substantially from the location where a study was conducted. In particular, the mental health service continuum is likely to be quite different from State to State.

The area deserving the most caution is determining how local conditions are likely to affect the use of mental health services by the SCHIP population. State- and community-specific factors that affect assumptions about use rates include:

- The availability of selected mental health services.
- Whether certain services are covered under SCHIP and the extent to which these services are restricted.
- The degree to which managed care techniques are used to restrict utilization. Greater use of managed care is expected to reduce the use of hospital services substantially; however, most of the utilization estimates available from the literature are from pre-managed care settings.
- The degree to which mental health services for children in primary care settings and in certain alternative settings (such as juvenile justice and school health/special education) are included under SCHIP.

To provide those who are designing and refining SCHIP plans with some guidance about the cost of mental health benefit packages, the model and parameters from the literature review were used to estimate costs.

After reviewing all sources of information for each parameter, a “default value” assumption was developed for each model parameter. Because studies are from various years, all payment rates were inflated to 1998 constant dollars, using the previously cited 7.2 percent increase per year (McKusick et al. 1998). Appendix G provides a detailed crosswalk between the literature and the default assumptions in the model. It also shows citations for upper and lower bounds of estimates from the literature in order to guide users of the model who choose to use alternative assumptions.

B. Total Expenditures for Mental Health Services

Table IV.1 provides estimates of total SCHIP mental health expenditures for three age groups of children: 0–5 years, 6–11 years, and 12–18 years. Lacking data on the number of SCHIP enrollees, it is hypothetically assumed that there were 1,000 children in each of the three age groups, for a total of 3,000 children. For the two older groups, estimates are broken into services for children or adolescents with serious emotional disturbance (SED) and those with other mental health conditions. (There was not sufficient information in the literature on the prevalence of SED in the youngest children to study them separately.)

Before considering these estimates of SCHIP expenditures, it is important to note several assumptions underlying the model in addition to the caveats listed above. First, mental health services are included in the estimates regardless of whether they are provided by mental health specialty providers or by other health care providers. This means, for example, that the estimates for inpatient hospital services apply not only to

Table IV.1: Estimated Expenditures (in 1,000s) for Mental Health Services for 3,000 SCHIP Children and Adolescents

Children (ages 0–5) (n=1,000)		Children (ages 6–11) (n=1,000)		Adolescents (ages 12–18) (n=1,000)		All SCHIP Children (n=3,000)	
	SED	Other Mental Health	SED	Other Mental Health	Total Expenditures	Column Percent	
Inpatient Hospital	\$10.2	\$136.0	\$51.1	\$151.4	\$46.3	\$395.0	61.9
Residential	0.0	10.2	2.3	34.8	2.3	49.6	7.8
Partial Hospitalization	0.0	0.0	0.0	12.5	.8	13.3	2.1
Outpatient	5.4	30.2	11.4	46.1	13.8	107.0	16.8
Case Management	6.4	12.1	6.3	16.2	6.4	47.5	7.4
School Health	0.0	4.2	1.4	6.5	1.7	13.8	2.2
Pharmacy	1.4	2.3	2.1	3.5	2.5	11.8	1.8
Total	\$23.4	\$195.2	\$74.6	\$271.0	\$73.9	\$638.1	100.0
Row Percent	3.7	30.6	11.7	42.4	11.6	100.0	—

Note: Expenditures are expressed in 1998 constant dollars. Substance abuse services are excluded.

Note: Expenditures are expressed in 1998 constant dollars. Substance abuse services are excluded.

psychiatric hospitals but also to hospitalization in general community hospitals for a mental health diagnosis. The estimates for outpatient services include visits to clinics, outpatient departments, family practitioners, or pediatricians, if the visit was for a mental health problem. This approach was taken for two reasons. First, most of the data from the literature on utilization and expenditures are classified by diagnosis rather than by site. Second, mental health carve-out plans often classify services in a similar manner. Cost estimates would be lower if only services to specialty providers were included (although States would pay for nonspecialty provider services through regular SCHIP benefits). Similarly, mental health case management, school health, and pharmacy services are included in these estimates. A State may or may not cover these services under a SCHIP plan, and, if they are covered, a State may or may not consider them as mental health benefits.

On the other hand, no services from sectors other than health and mental health are included. For example, we have not included mental health services that might be provided by the juvenile justice system (e.g., therapeutic residential services), the child welfare system (e.g., intensive case management), or school-based special education programs. This decision was made both because of a lack of data on the utilization and cost of these services and because of the direction SCHIP policy is likely to take with regard to coverage in most States.

1. Expenditures by Type of Service

Table IV.1 shows that, for these 3,000 children, a hypothetical State would spend \$638,100 for mental health services in a year according to the default assumptions regard-

ing prevalence of mental health problems in the SCHIP population, utilization under SCHIP of various types of services, and unit cost to the SCHIP plan for those services.

About 70 percent of these expenditures are for inpatient hospital, residential, and partial hospitalization services. This estimate is higher than in the studies referenced in the literature review (see Table III.13), but it is probably realistic, given the current relatively limited coverage of alternative services in many SCHIP plans.

Outpatient services represent the next highest proportion of expenditures (16.8 percent). The remaining expenditures are for case management (7.4 percent), school health (2.2 percent), and pharmacy (1.8 percent). To the extent that a SCHIP plan could, through various benefit design options, limit inpatient hospital services and encourage the use of alternative services, it could shift the mix and possibly the level of expenditures from inpatient hospital to alternative settings.

2. Expenditures by Diagnosis and Age

Table IV.1 also makes it possible to examine how much of the total expenditure for mental health under SCHIP would be allocated to various children by age and diagnosis. A large majority of expenditures are for children (30.6 percent) and adolescents (42.4 percent) with SED. Should a State choose to carve out services for such conditions, as some have done, the cost of the coverage of a fairly broad package of services for the remainder of SCHIP children would be only about a quarter of our estimated total.

Alternatively, if many children with SED in a State are enrolled in SSI, and consequently Medicaid, SCHIP expenditures for mental health would be dramatically lower. In this hypothetical case, adolescents with SED are

by far the most expensive population (\$271,000), and young children, ages 0 to 5, are by far the least expensive (\$23,400). Expenditures for the other age/diagnosis groups are between these two extremes.

C. Monthly and Annual Expenditures

Table IV.2 presents estimated monthly and annual average expenditures per SCHIP child for children with a mental health problem for each group and for SED separately from other mental health diagnoses. The table also shows the average across all SCHIP children and adolescents. It is important to examine the estimates in both ways because a State may choose to construct a capitation rate in either manner. For example, if a State carves out mental health services, it might choose to pay a rate per child with mental health service needs.

As shown, monthly and annual expenditure rates for SED children and adolescents are quite high, \$271 and \$251 respectively per month and \$3,254 and \$3,011 respectively per year. Although the prevalence of SED is estimated to be higher in adolescents—resulting in the higher overall total expenditure for that group shown in Table IV.1—the expenditure per SED adolescent does not differ greatly from the expenditure per SED child. For children with less severe mental health needs, the expenditure rates are \$33 per month for the youngest children, ages 0 to 5, and about twice as high for older children, ages 6 to 11 (\$69) and adolescents (\$56).

When the expenditures are spread across all SCHIP children and adolescents, the rates are much lower: children ages 0 to 11 (\$12) and adolescents (\$29). States have generally established capitation rates across broad age

Table IV.2: Estimated Expenditures per Enrollee for Mental Health Services

	<i>Per Month</i>	<i>Per Year</i>
Children and Adolescents with SED		
Ages 6–11	\$271	\$3,254
Ages 12–18	251	3,011
Children and Adolescents with Mental Health Disorder but not SED		
Ages 0–5	33	390
Ages 6–11	69	828
Ages 12–18	56	672
All SCHIP Children and Adolescents (with and without mental health problems)		
Children (ages 0–11)	12	147
Adolescents (ages 12–18)	29	345
Children and Adolescents (ages 0–18)	18	213
Note: Expenditures are expressed in 1998 constant dollars. Estimates exclude substance abuse treatment, but include all of the following mental health services: inpatient hospital, residential, partial hospitalization, outpatient, case management, school health, and pharmacy.		

groups for their Medicaid programs, although many have developed separate rates for different severity groups. While program policy regarding SCHIP capitation approaches and rate setting is still under development, it is likely that most States will choose to use managed care approaches and to construct capitation rates in this manner, using broad age groups. Using this simulation, if a rate for the entire SCHIP population were constructed, the rate based on these estimates would be \$18 per month, or \$213 per year.

This amount can be compared to two different benchmarks, each discussed earlier in this report. The first benchmark appears in Table II.1, which shows the Hay Group estimates of SCHIP MH/SA costs; that simulation uses the coverage assumptions from several State-designed SCHIP plans and expenditures from children in private plans. The estimate of \$213 per year in the current report is considerably higher than the highest Hay Group estimate of \$110 per year for North Carolina, which had unlimited inpatient and outpatient services. The current estimate includes several services not covered in the North Carolina plan. Also, the Hay Group data are for 1997, and the current estimates are inflated to 1998 constant dollars.

These monthly and annual rates can also be compared to the information from the Holahan et al. (1999) study of Medicaid capitation rates cited earlier. As mentioned, the median total Medicaid capitation rate (including all services) is \$64 for children ages 1 to 13, \$134 for adolescent females, and \$121 for adolescent males. These monthly rates can be compared to our estimated average monthly mental health expenditure of \$12 per child, ages 0 to 11, and \$29 per adolescent, ages 12 to 18, for mental

health services based on data from the literature review.

Most States are also using managed care approaches to cover their SCHIP population, but there is not yet a study of SCHIP capitation rates. To the extent that States are adopting rates that are similar to those used for their Medicaid programs,² mental health services, if covered and used at the level documented in the literature review included here, would account for approximately 20 percent of the SCHIP capitation rates in the median State. The monthly expenditure rates shown in Table IV.2 are about twice what was assumed by Holahan et al. (1999) for the mental health component of Medicaid capitation rates. Their mental health capitation rates include those mental health services included in State carve-out plans. In the current report, some services are included in the rates that would generally be outside that total, such as services in general inpatient hospitals and pharmacy services.

D. Alternative Scenarios

Given that States may or may not choose to support this level of expenditure for mental health services under SCHIP, we tested the sensitivity of the expenditure estimates to alternative assumptions. The resulting estimates are presented in Table IV.3. The table shows the monthly expenditure, averaged across all SCHIP children, the average yearly expenditure, and the proportion of total expenditures allocated to inpatient hospital services.

² Anecdotal information from States suggests that some States have adopted rates that are lower than their Medicaid rates and some States have adopted higher rates.

Table IV.3: Expenditures for Mental Health Under SCHIP Under Alternative Assumptions

<i>Expenditure Measures</i>	<i>Default Assumptions^a</i>	<i>Prevalence</i>		<i>Utilization</i>		<i>Payment Rates</i>		<i>No Coverage for Residential, Partial Hospitalization, Case Management, School Health, or Pharmacy</i>
		<i>SED 30% Lower</i>	<i>SED 30% Higher</i>	<i>Reduce Hospital Days by 50%; Increase Outpatient, Case Management, and School Health Use by 50%</i>	<i>Hospital Use 50% Lower; Residential Health Use 50% Higher</i>	<i>Hospital Payment per Day 20% Lower</i>	<i>Outpatient Payment per Visit 50% Lower</i>	
Expenditures per SCHIP Child/Adolescent								
Per Month	\$18							
Per Year	\$213	\$12 \$149	\$23 \$277	\$15 \$175	\$14 \$171	\$16 \$186	\$16 \$195	\$14 \$167
% of Expenditures for Inpatient Hospital, Residential, and Partial Hospitalization	71.8%	71.8%	71.8%	50.9%	61.2%	67.8%	78.3%	78.6%
*See Appendix F for a detailed explanation of how each default assumption was derived from the literature.								

1. Alternative Prevalence Assumptions

Based on data on prevalence by income level from the Great Smoky Mountains Study of Youth, the default assumptions on prevalence of mental health problems in the SCHIP population resemble those for the Medicaid population. However, some of the SED children in the SCHIP-eligible population may apply for and obtain SSI benefits, automatically entitling them to Medicaid, or prevalence of mental health problems in the SCHIP population may more closely resemble uninsured children and adolescents. Consequently, the first alternative scenario simulated here assumes that the prevalence of SED in the SCHIP population is 30 percent lower than the default assumption. As shown in Table IV.3, the resulting monthly capitation rate is lower at \$12 per month per SCHIP child/adolescent for mental health services (compared with \$18 for the default prevalence assumption).

Alternatively, it is possible that prevalence in some communities is much higher than in those included in the literature review. This higher prevalence could be particularly true if a State chooses to cover, for example, mental health services for some children in sectors such as juvenile justice.

The table shows that if the prevalence of SED were 30 percent higher, the average monthly expenditure would be substantially higher, at \$23 per month. However, neither of these alternative prevalence estimates affects the proportion of total expenditures for institutional care.

2. Alternative Utilization Assumptions

A State might use various approaches to alter the utilization of mental health services. For example, risk-based managed care is likely to lead to lower use of hospital services by sub-

stituting alternative services. The first alternative scenario simulated here assumes that the number of inpatient hospital days is reduced by fully 50 percent, while the use of outpatient, case management, and school health services is increased by 50 percent. The result is a somewhat lower average monthly expenditure (\$15) and a dramatic shift away from institutional services, which become only 50.9 percent of total expenditures.

The second alternative simulated in this report is to reduce hospital days by 50 percent and increase residential services sufficiently so that total hospital/residential days do not change (i.e., a direct one-for-one substitution of residential for hospital days). The result would be an average monthly expenditure of \$14 per month for mental health services across the SCHIP population. A similar result would occur if partial hospitalization days could be substituted for hospital days. However, the literature reflects that such one-to-one substitutions generally do not occur without a corresponding increase in some other support services, such as case management.

3. Alternative Payment Rate Assumptions

A SCHIP program that pays providers on a fee-for-service basis has direct control over the average payment per unit of service. Alternatively, if the program pays plans a monthly capitation rate, plans negotiate a rate with providers. The average expenditure per SCHIP child is sensitive to these payment rates. The default assumption for hospital per diem payment is \$701; if it could be lowered by 20 percent, a potentially feasible approach to cost control, then the average expenditure per SCHIP child would be reduced to \$16 per month. This approach

might be chosen by a State to avoid putting limits on utilization.

Another alternative reimbursement approach is to lower outpatient reimbursement. However, even lowering the outpatient reimbursement rate dramatically by 50 percent results in a reduction of only \$2 per month in the average monthly expenditure per SCHIP child. This approach is not an appealing one if the goal is to reduce overall cost and shift services from inpatient to outpatient settings.

4. Eliminating Coverage of Alternative Services

Many private insurance plans and, consequently, many State-designed plans (and some Medicaid plans) do not cover the types of alternative services that are included in the model (i.e., residential care, partial hospitalization, case management, and school health). Also, some States do not pay for pharmacy services under mental health benefit packages. The final column of Table IV.3 shows a simulation of what the monthly average monthly expenditure would be if these services were not included in a State's SCHIP mental health benefits. Under this scenario, the average monthly expenditure becomes \$14 per month per SCHIP child/adolescent.

E. Summary

A range of monthly and annual average expenditures for SCHIP mental health benefits according to alternative scenarios of prevalence, utilization, and payment rates per unit of service have been presented here. The actual scenarios that a given State might choose would depend on the particular conditions in the State and how the State decides to provide mental health services to low-income children and adolescents. For exam-

ple, a State may prefer to continue to provide most services in other ways (i.e., under SSI Medicaid for SED children, under State-sponsored mental health programs, or under special education programs). Alternatively, a State may choose to use SCHIP's higher matching rates to cover services previously covered by State and local funds entirely. Some of the scenarios tested here could be combined (e.g., the State could assume that both hospital utilization and payment rates would be lower or higher).

The scenarios that were tested resulted in average expenditures for SCHIP mental health services that ranged from \$12 to \$23 per month, or \$149 to \$277 per year. The lower amount, which assumes a substantially lower prevalence of SED, fits more comfortably within the capitation rates currently being offered under Medicaid. For example, this scenario could be achieved if many SCHIP-eligible children and adolescents with SED receive SSI benefits and consequently are covered by Medicaid.

The alternative scenarios also show how the proportion of total SCHIP mental health expenditures could vary across types of services, depending on alternative assumptions. The proportion of expenditures for inpatient hospital care varies from 50.9 percent to fully 78.6 percent. In deciding how to allocate SCHIP funds, a State should consider the types of mental health services it wants SCHIP enrollees to receive, as well as the overall amount that it is willing to pay for such services.

The cost model discussed here has shown that a fairly broad range of mental health services can be supported under SCHIP—roughly within existing capitation rates—if SCHIP plans pay approximately what Medicaid plans are currently paying,

although rates in some States would need to be higher. This is especially true if utilization of hospital services can be reduced; for example, the increased use of alternative services is an approach that is generally considered to be desirable by child mental health policy advocates. If States are seeking to cover services under SCHIP that they would otherwise cover with State funds, they should recognize that the average monthly expenditure per SCHIP child will be much higher.

There is still considerable uncertainty about how much it will cost SCHIP plans to cover MH/SA services for previously uninsured low-income children. Undoubtedly the cost will vary substantially from State to State, depending on the benefits covered,

prevalence of MH/SA problems, the delivery system for MH/SA services in the State, and alternative sources of financing for such services.

Current SCHIP coverage policy in many States—especially those with State-designed plans—does not support a wide array of MH/SA services for children and adolescents. However, this analysis has shown that States could cover, within a relatively small increased expenditure per month, the cost of an array of services under SCHIP. Many, perhaps most, of these services are already being paid for by the State under alternative financing programs. This report provided some information to guide State policymakers on the likely cost of such services.

V. References

- Agency for Health Care Policy and Research, Hospital Cost and Utilization Projects. (1999). HCUPnet, web site: <http://198.179.0.16/HCUPnet.asp>.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- Anglin, T. M., Naylor, K. E., & Kaplan, D. W. (1996). Comprehensive school-based health care: High school students' use of medical, mental health, and substance abuse services. *Pediatrics*, 97(3), 318–330.
- Barber, C. C. et al. (1992). Use of mental health services among severely emotionally disturbed children and adolescents in San Francisco. *Journal of Child and Family Studies*, 1(2), 183–207.
- Bickman, L. et al. (1995). *Evaluating managed mental health services—The Fort Bragg Experiment*. New York: Plenum Press.
- Brisson, A. E. & Frank, R. C. (1999). Managed care and substance abuse services. *Insights into Managed Care*, 2(3); 1–2.
- Brook, J. S., Balka, E. B., & Whiteman, M. (1999). The risks for late adolescence of early marijuana use. *American Journal of Public Health*, 89(10), 1549–1554.
- Buck, J. A. (1997). Utilization of Medicaid mental health services by nondisabled children and adolescents. *Psychiatric Services*, 48(1), 65–70.
- Bukstein, O. G., Brent, D. A., & Kaminer, Y., (1989). Comorbidity of substance abuse and other psychiatric disorders in adolescents. *American Journal of Psychiatry*, 146(9), 1131–1141.
- Burns, B. J. (1991). Mental health service use by adolescents in the 1970s and 1980s. *Journal of the American Academy of Child and Adolescent Psychiatry*, 30(1), 144–150.
- Burns, B. J. & Goldman, S. K. (Eds.). (1999). Promising practices in wrap-around for children with serious emotional disturbance and their families. In *Systems of care: promising practices in children's mental health, 1998 Series*, Volume IV. Washington, DC: Center for Effective Collaboration and Practice, American Institutes for Research.
- Burns, B. J., Thompson, J. W., & Goldman, H. H. (1993). Initial treatment decisions by level of care for youth in the CHAMPUS Tidewater demonstration. *Administration and Policy in Mental Health*, 20(4).
- Burns, B. J. et al. (1995). Children's mental health service use across service sectors. *Health Affairs*, 14(3), 147–159.
- Burns, B. J. et al. (1997). Insurance coverage and mental health service use by

- adolescents with serious emotional disturbance. *Journal of Child and Family Studies*, 6(1), 89–111.
- Burns, B. J. et al. (1999). Public sector-managed behavioral health care: A Medicaid carve-out for children and adolescents. *Health Affairs*, 18(5), 214–225.
- Bussing, R. et al. (1998). Children in special education programs: Attention deficit hyperactivity disorder, use of services, and unmet needs. *American Journal of Public Health*, 88(6), 880–886.
- California Medical Assistance Commission. (1999). *Annual report to the legislature*. Sacramento, CA: California Medical Assistance Commission.
- Centers for Disease Control and Prevention. (1996). CDC surveillance summaries. *Morbidity and Mortality Weekly Report*, 45(SS-4).
- Chen, K., & Kandel, D. B. (1995). The natural history of drug use from adolescence to the mid-thirties in a general population sample. *American Journal of Public Health*, 85(1), 41–47.
- Children's Defense Fund. (1998). *CHIP state-by-state summary*. Washington, DC.
- Cohen, P. et al. (1993). An epidemiological study of disorders in late childhood and adolescence—I. Age- and gender-specific prevalence. *Journal of Child Psychology and Psychiatry* 34(6), 851–867.
- Coiro, M. J., Zill, N., & Bloom, B. (1994). Health of our nation's children. *Vital Health Statistics*, 10(191).
- Congressional Research Service. (1993). *Medicaid source book: Background data and analysis (a 1993 update)*. Washington, DC: U.S. Government Printing Office.
- Costello, E. J. et al. (1996a). The Great Smoky Mountains Study of Youth—goals, design, methods, and the prevalence of DSM-III-R disorders. *Archives of General Psychiatry*, 53(12), 1129–1136.
- Costello, E. J. et al. (1996b). The Great Smoky Mountains Study of Youth—functional impairment and serious emotional disturbance. *Archives of General Psychiatry*, 53(12), 1137–1143.
- Costello, E. J. et al. (1998). The prevalence of serious emotional disturbance: A re-analysis of community studies. *Journal of Child and Family Studies*, 7(4), 411–432.
- Cunningham, P. J. & Freiman, M. P. (1996). Determinants of ambulatory mental health services use for school-age children and adolescents. *Health Services Research*, 31(4), 409–427.
- Czajka, J. L. (1999a). *The dynamics of uninsurance, Medicaid eligibility and participation among children: 1993–1994*. Washington, DC: Mathematica Policy Research, Inc.
- Czajka, J. L. (1999b). *Characteristics of children by health insurance status*. Washington, DC: Mathematica Policy Research, Inc.
- Don't shortchange children. (1999, March 30). *Hartford Courant*.
- A double standard of care. (1999, March 29). *Hartford Courant*.
- Ellwood, M. R. & Lewis, K. (1999). *The ins and outs of Medicaid: Enrollment patterns for California and Florida in*

- 1995—*Draft Report*. Washington, DC: Mathematica Policy Research, Inc.
- Farmer, E. et al. 1999. Use persistence and intensity: Patterns of care for children's mental health across one year. *Community Mental Health Journal*, 35(1), 31–46.
- Federal Register*. (1998). Children with serious emotional disturbance. *Estimation Methodology*, 63(137), 38661–38665.
- Fox, H. B., Graham, R. R., McManus, M. A., & Chen, C. Y. (1999). *An analysis of states, CHIP policies affecting children with special health care needs*, The Child Health Insurance Program Issue Brief Number 6. Washington, DC: Maternal and Child Health Policy Research Center.
- Fox, H. B., Graham, R. R., & McManus, M. A. (1998). *States' CHIP policies and children with special health care needs*. The Child Health Insurance Project Issue Brief Number 4. Washington, DC: Maternal and Child Health Policy Research Center.
- Fox, H. B. et al. (1998). *Cost-sharing options under the state Children's Health Insurance Program*. The Child Health Insurance Project Issue Brief Number 3. Washington, DC: Maternal and Child Health Policy Research Center.
- Friedman, R. M. (1991). *Mental health and substance abuse services for adolescents: Clinical and service system issues*. Prepared for American College of Mental Health Administration Annual Meeting. Pittsburgh, PA.
- Friedman, R. M. (1987). *Service capacity in a balanced system of services for seriously emotionally disturbed children*. Tampa: Florida Mental Health Institute.
- Friedman, R. M. et al. (1996). Prevalence of serious emotional disturbance in children and adolescents. *Mental Health, United States*, Chapter 6. In R. W. Manderscheid and M. A. Sonnenschein (Eds.), DHHS Pub. No. (SMA) 96-3098. Washington DC: U.S. Government Printing Office.
- Garland, A. F., Hough, R. L., & Wood, P. (1998). *Prevalence of psychiatric diagnoses in youth across five sectors of care*. Preliminary Findings—Information from Presentation Slides for the annual meeting of the American Public Health Association, Washington, DC.
- Gehshan, S., & McDonough, J. (1998, October). *Technical assistance report: Family coverage under the state children's health insurance program*. Washington, DC: Forum for State Health Policy Leadership, National Conference of State Legislatures.
- Glied, S. et al. (1997a). Measuring child mental health status for services research. *Journal of Child and Family Studies*, 6(2), 177–190.
- Glied, S. et al. (1997b). Children's access to mental health care: Does insurance matter? *Health Affairs* 16(1), 167–174.
- Grazier, K. L. & Eselius, L. L. (1999). Mental health carve-outs: Effects and implications. *Medical Care Research and Review* 56(2), 37–59.
- Greenhill, L. L. (1998). Stimulant medications. *NIH Consensus Development Conference on Diagnosis and Treatment of Attention Deficit Hyperactivity*

-
- Disorder—Abstracts*. Bethesda, MD: National Institutes of Health.
- Gresenz, C. R., Liu, X., & Sturm, R. (1998). Managed behavioral health services for children under care-out contracts. *Psychiatric Services* 49(8), 1054–1058.
- Halfon, N., & Newacheck, P. W. (1999). Prevalence and impact of parent-reported disabling mental health conditions among U.S. children. *Journal of American Academic Child and Adolescent Psychiatry*, 38(5), 600–609.
- Haremann, J. (1999). Child health program gets off to slow start. *The Washington Post*, A19.
- Hearne, J. J. (1998). *Coordinating children's coverage expansions with employer-sponsored coverage*. Washington, DC: Institute for Health Policy Solutions. www.iphs.org
- Heffron, J., & Davis, D. (1999). An analysis of the mental health/substance abuse benefits and cost-sharing policies of approved state children's health insurance program plans. Washington, DC: National Mental Health Association.
- Hoagwood, K. (1998). A national perspective on treatments and services for children with ADHD. *NIH Consensus Development Conference on Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder—Abstracts*. Bethesda, MD: National Institutes of Health.
- Hodges, S., Nesman, T., & Hernandez, M. (1998). Promising practices: Building collaboration in systems of care. In *Systems of Care: Promising Practices in Children's Mental Health*. Volume VI. Washington, DC: Center for Effective Collaboration and Practice, American Institutes for Research.
- Holahan, J., Rangarajan, S., & Schirmer, M. (1999). *Medicaid managed care payment methods and capitation rates: Results of a national survey*. Occasional Paper, 26. Washington, DC: The Urban Institute.
- Holmes, K. (1997). Presentation materials prepared for *Behavioral health in Medicaid managed care: A "how to" for state policymakers: a one-day intensive seminar designed for state policymakers—program guide*. Sponsored by The Center for Vulnerable Populations. August 12.
- Hustead, E. C., & Plazinski, L. (1997). *Value of benefits offered in benchmark plans for State Children's Health Insurance Program (SCHIP)*. Washington, DC: Hay Group.
- Ichinose, C. K., Kingdon, D. W., & Hernandez, M. (1994). Developing community alternatives to group home placement for SED special education students in the Ventura County system of care. *Journal of Child and Family Studies*, 3(2), 193–210.
- Iglehart, J. L. (1996). Managed care and mental health. *New England Journal of Medicine*, 334(2), 131–135.
- Johnson, J. A., Roman, P. M., & Blum, T. C. (1998). The costs of alcoholism treatment: A look at differences among private alcoholism treatment programs. *Front Lines—Linking Alcohol Services Research and Practice*. November: 4.
- Kaplan, D. W. et al. (1998). Managed care and school-based health centers use of

- health services. *Archives of Pediatric and Adolescent Medicine*, 152(1), 25–33.
- Katz-Leavy, J., Tesauro, G., & Guthrie, C. (1998). *Mental health components of a quality system of care for children and adolescents—A brief overview* (monograph). Washington, DC: Substance Abuse and Mental Health Services Administration.
- Kelleher, K. J. (1998). Use of services and costs for youth with ADHD and related conditions. *NIH Consensus Development Conference on Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder—Abstracts*. Bethesda, MD: National Institutes of Health.
- Knitzer, J. (1993). Children's mental health policy: Challenging the future. *Journal of Emotional and Behavioral Disorders*, 1(1), 8–16.
- Kutash, K. A., Duchnowski, J., & Sondheimer, D.L. (1994). Building the research base for children's mental health services. *Journal of Emotional and Behavioral Disorders* 2(4), 194–197.
- Lahey, B. B. et al. (1996). The NIMH methods for the epidemiology of child and adolescent mental disorders (MECA) study: Background and methodology. *Journal of American Academy Child Adolescent Psychiatry*, 35(7), 855–864.
- Lamberg, L. (1998). Preventing school violence: No easy answers. *Journal of American Medical Association*, 280(5), 404–407.
- Leaf, P. J. et al. (1996). Mental health service use in the community and schools: Results from the four-community MECA study. *Journal of American Academy Child Adolescent Psychiatry*, 35(7), 889–897.
- LeFever, G. B., Dawson, K. V., & Morrow, A. L. (1999). The extent of drug therapy for attention deficit-hyperactivity disorder among children in public schools. *American Journal of Public Health*, 89(9), 1359–1364.
- Lin, C. J. & Lave, J. R. (1998). Duration in and pattern of utilization under children's health insurance programs. *Health Care Financing Review*, 19(4), 101–116.
- Mark, T. et al. (1998). *National expenditures for mental health, alcohol, and other drugs*. SMA 98-3255. Rockville, MD: DHHS.
- Medicine and Health*. (1999b). DeParle says states to spend full SCHIP allotments. 53(18).
- Mental Health Weekly*. (1999). Arizona children face tough transition between programs. 9(25).
- McKusick, D. et al. (1998). Spending for mental health and substance abuse treatment, 1996. *Health Affairs*, 17(5), 147–157.
- Minugh, P. A., Jackson, J. S., & Cotter, F. (1998). *Quality systems of substance abuse care for adolescents*. Report prepared for Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, Washington, DC.
- Morris, R. E. et al. (1995). Health risk behavioral survey from 39 juvenile correctional facilities in the United States. *Journal of Adolescent Health*, 17(6), 334–344.

-
- Narrow, W. E. et al. (1998). A comparison of federal definitions of severe mental illness among children and adolescents in four communities. *Psychiatric Services*, 49(12), 1601–1608.
- National Academy for State Health Policy and The Lewin Group. (1999). *A summary of planned mental health and substance abuse services and activities in Title XXI programs*. Report prepared for Substance Abuse and Mental Health Services Administration. Fairfax, VA: The Lewin Group.
- National Center for Health Statistics. (1995). Unpublished work tables. Prepared by the Mortality Statistics Branch, Division of Vital Statistics. Reported in *Trends in the well being of America's children and youth: 1995*.
- National Institute of Justice. (1992). Drug use forecasting. 1991 Annual Report. Research in Brief. Washington, DC.
- National Institute on Drug Abuse. (1996). National survey results on drug use from the Monitoring the Future Study, 1975–1995. Vol. 1. In L.D. Johnston, P.M. O'Malley, & J.G. Bachman (Eds.), *Secondary School Students*. Rockville, MD: National Institute on Drug Abuse.
- National Mental Health Association. 1998. *Mental health benefits of approved state children's health insurance plans*. Draft. Washington, DC: NMHA, Department of State Affairs.
- National Resource Network for Child and Family Mental Health Services at the Washington Business Group on Health (Ed.). (1999). A compilation of lessons learned from the 22 grantees of the 1997 Comprehensive Community Mental Health Services for Children and Their Families Program. In *Systems of Care: Promising Practices in Children's Mental Health*, 1998 Series, Vol. VII. Washington, DC: Center for Effective Collaboration and Practice, American Institutes for Research.
- Peele, P. B., Lave, J. R., & Xu, Y. (1999). Benefit limits in managed behavioral healthcare: Do they matter? *Journal of Behavioral Health Services and Research*, 26(4), 430–441.
- Pear, R. (1999, May 9). Many states slow to use children's insurance fund. *The New York Times*.
- Pitting children against children. (1999, March 31). *Hartford Courant*.
- Riley, T., Rawlings-Secunda, J., & Pernice, C. (1997). *The KAISER-HCFA state symposia series, transitioning to managed care: Medicaid managed care in mental health*. Portland, OR: National Academy for State Health Policy.
- Rosenbaum, S. et al. (1998). The children's hour: The state children's health insurance program. *Health Affairs*, 17(1), 75–89.
- Schoen, C. et al. (1998). *The health of adolescent boys: Commonwealth fund survey findings*. New York: The Commonwealth Fund.
- Shaffer, D. et al. (1983). A children's global assessment scale (CGAS). *Archives of General Psychiatry*, 40, 1228–1231.
- Shaffer, D. et al. (1996). The NIMH diagnostic interview schedule for children. Version 2.3 (DISC-2.3): Description, acceptability, prevalence rates, and performance in the MECA study. *Journal of*

-
- American Academy of Child and Adolescent Psychiatry*, 35(7), 865–877.
- Silver, S. E. et al. (1992). A comparison of children with serious emotional disturbance served in residential and school settings. *Journal of Child and Family Studies*, 1(2), 43–59.
- Simpson, L., & Fraser, I. (1999). Children and managed care: What research can, can't and should tell us about impact. *Medical Care Research and Review*, 56(2), 13–36.
- Sing, M., & Hill, S. (1998). *Predicted premium increases due to full and partial parity for mental health and substance abuse insurance benefits*. Washington, DC: Mathematica Policy Research, Inc.
- Singh, N. N. et al. (1994). Characteristics of children and adolescents with serious emotional disturbance in systems of care. Part I: Partial Hospitalization and Inpatient Psychiatric Services. *Journal of Emotional and Behavioral Disorders*, 2(1), 13–20.
- Smith, V. K. (1999). *Enrollment increases in state CHIP programs: December 1998 to June 1999*. Lansing, Michigan: Health Management Associates.
- Stroul, B. A. (1993). *Systems of care—for children and adolescents with severe emotional disturbances: What are the results?* Washington, DC: Georgetown University Child Development Center.
- Stroul, B. A. et al. (1998). The impact of managed care on mental health services for children and their families. *The Future of Children*, 8(2), 119–133.
- Sturm, R. (1997). How expensive is unlimited mental health care coverage under managed care? *Journal of American Medical Association*, 278(18), 1533–1537.
- Substance Abuse and Mental Health Services Administration. Office of Substance Abuse Treatment. (1999a). *Treatment of adolescents with substance abuse disorders*. Rockville, MD: DHHS.
- Substance Abuse and Mental Health Services Administration. (1999b). *Trends in Medicaid MH/SA coverage 1993 table set*. Unpublished data.
- Substance Abuse and Mental Health Services Administration. Office of Applied Studies. (1999c). *The relationship between mental health and substance abuse among adolescents*. Rockville, MD: DHHS.
- Substance Abuse and Mental Health Services Administration. Center for Substance Abuse Treatment. (1998a). *Screening and assessing adolescents for substance abuse disorders: Treatment improvement protocol (TIP) Series 31*. Rockville, MD: DHHS.
- Substance Abuse and Mental Health Services Administration. (1998b.) *Health Care Reform Tracking Project: Tracking State managed care reforms as they affect children and adolescents with behavioral health disorders and their families* (1997 Impact Analysis). Rockville, MD: DHHS.
- Substance Abuse and Mental Health Services Administration. (1998c). *National household survey on drug abuse main findings 1996*. Rockville, MD: DHHS.

-
- Substance Abuse and Mental Health Services Administration. Office of Applied Studies. (1998d). *Services research outcomes study (SROS)*. Rockville, MD: DHHS.
- Substance Abuse and Mental Health Services Administration. Office of Applied Studies. (1998e). *Treatment episode data set (TEDS), 1995* [Computer File], 2nd ICPSR version. Chicago: National Opinion Research Corporation [Producer]. 1997. Ann Arbor: Inter-university Consortium for Political and Social Research [Distributor].
- Substance Abuse and Mental Health Services Administration. Office of Applied Studies. (1996). *Advance Report: DAWN Emergency Department: 1995 Mid-Year Drug Abuse Warning Network*. Washington, DC.
- Ullman, F., Bruen, B., & Holahan, J. (1998). *The state children's health insurance program: A look at the numbers*. Occasional Paper Number 4. Washington, DC: The Urban Institute.
- U.S. Census Bureau. *1990 to 1997 annual time series of state population estimates by age, sex, race, and hispanic origin* [1998 population estimates]. www.census.gov
- U.S. Congress. Office of Technology Assessment. (1991). *Adolescent health—Volume II background and the effectiveness of selected prevention and treatment services*. OTA-H-467. Washington, DC: U.S. Government Printing Office.
- Verdier, J. M. (1998, August). *Measuring, monitoring, and reporting on State children's health insurance programs: A primer for State officials*. Washington, DC: American Public Human Services Association.
- When children go untreated. (1999, March 28) *Hartford Courant*.
- Wickizer, T. M., Lessler, D., & Boyd-Wickizer, J. (1999). Effects of health care cost-containment programs on patterns of care and readmissions among children and adolescents. *American Journal of Public Health*, 89(9), 1353–1358.
- Winters, K.C. (1999). A new multiscale measure of adult substance abuse. *Journal of Substance Abuse Treatment*, 16(3), 237–246.
- Woodruff, D. W. et al. (1999). *The role of education in a system of care: Effectively serving children with emotional or behavioral disorders*. Systems of Care: Promising Practices in Children's Mental Health, 1998 Series, Volume III. Washington, DC: Center for Effective Collaboration and Practice, American Institutes for Research.
- Wright, G., Smolkin, S., & Bencio, D. (1995). *Medicaid mental health and substance abuse 1992 use and expenditure estimates for Michigan and California: final report*. Washington, DC: Mathematica Policy Research, Inc.

VI. Appendix A: List of Experts Interviewed for Study

Before beginning the analysis leading to this report, discussions were held with representatives from the following organizations to frame our approach:

- Anthony Broskowski, Consultant
Pareto Solutions, LC
- Mary Crosby, Deputy Executive Director
American Association of Child and Adolescent Psychiatry/National Association
- Dr. Raymond Crowel, Project Director
East Baltimore Mental Health Partnership
- Richard Dougherty, Consultant
- Sybil Goldman, Director
National Technical Assistance Center for Children's Mental Health
- Mary Graham, Senior Director,
State Healthcare Reform, National Mental Health Association
- Kay Holmes
Chief of Managed Care Programs for Delaware
- Judith Katz-Levy, Senior Policy Analyst
Substance Abuse and Mental Health Services Administration/Center for Mental Health Services
- Chris Koyanagi, Director
Government Relations, Bazelon Center for Mental Health Law
- Kathleen Malloy, Senior Researcher
George Washington University Center for Health Policy Research
- Jan McCarthy, Director
Child Welfare Policy/Georgetown Technical Assistance Center at the Georgetown Child Development Center
- Angela Oddone, Interim Director
Practice Directorate/American Psychological Association
- Trina Osher, Coordinator for Research and Policy
Federation of Families for Children's Mental Health
- Rolando Santiago, Evaluator
Substance Abuse and Mental Health Services Administration/Center for Mental Health Services
- Todd Sosna, Project Director
Santa Barbara County Alcohol, Drug, and Mental Health Services
- Andrew Sperling, Director of Public Policy
National Alliance for the Mentally Ill
- Julian Taplan, Division Director
Child Mental Health Services/State of Delaware
- Jennifer Urff, Director of Government Relations
National Association of State Mental Health Program Directors

The authors also acknowledge the help of three Mathematica internal consultants—Margo Rosenbach, Merrile Sing, and Jim Verdier—and three external consultants—Barbara Burns, Kelly Kelleher, and David McKusick. These individuals gave extensive guidance on the design of the study, possible data sources, and the content of the final report. Two individuals—Elizabeth Farmer

and Christine Walwrath—provided special data analyses from their demonstration project files.

Their time and effort is appreciated, as is the help of the project secretary, Sharon Clark, who helped to transform a large amount of complex material into a readable report.

VII. Appendix B: List of Sources for Additional Information on SCHIP

Organization

Web Site

1. Agency for Healthcare Research and Quality	ahcpr.gov
2. Alpha Center	ac.org
3. American Academy of Pediatrics	aap.org
4. Assistant Secretary for Planning and Evaluation	aspe.os.dhhs.gov/
5. Association of Maternal and Child Health Programs	amchp.org
6. Bazelon Center for Mental Health Law	bazelon.org
7. Center for Health Services Research and Policy	gwu.edu/~chsrp/
8. Children's Defense Fund	childrensdefense.org
9. Families USA	familiesusa.org
10. Family Voices	familyvoices.org
11. Health Care Financing Administration	hcfa.gov
12. Health Resources and Services Administration	hrsa.gov
13. Institute for Health Policy Studies	ihps.org
14. Maternal and Child Health Policy Research Center	mchpolicy.org
15. Maternal and Child Health Bureau	mchb.hrsa.gov
16. National Conference of State Legislatures	stateserv.hpts.org
17. National Governors' Association & NGA Center for Best Practices	nga.org
18. Robert Wood Johnson Foundation	coveringkids.org
19. Urban Institute	urban.org

Note: Each address is preceded by "www." Many sites contain links to additional sites.

VIII.

Appendix C: Coverage of Mental Health and Substance Abuse Services Under SCHIP

Table C.1: SCHIP Coverage of MH/SA BY Type of Service

State	Type of Coverage ¹	Mental Health Service					Substance Abuse Service			Annual or Lifetime Limits
		Inpatient Hospital	Residential and/or Institutions for Mental Disease	Partial Hospital/Day Treatment	Outpatient Visits	Case Management	School Health	Pharmacy Inpt/ Detox.	Residential Opt/Day Treatment	
AL	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes ²	Yes ²	
	Separate Plan	Yes ³			Yes ³	Yes ⁸	Yes (1/\$3 copay) (generic/brand) ³	Yes/limited (72 hrs/episode) ¹	Yes/limited (20 vsts/yr) ¹	
AK	Medicaid ⁹	Yes ³	Yes ²	Yes ³	Yes (and rehab) ³		No ⁶	Yes ³	Yes ³	
AZ	Separate Plan	Yes/limited (30 days/yr) ³	Yes ³ (included in inpatient limit) ⁸	Yes/limited (included in inpatient limit) ³	Yes/limited (30 days/yr) ³	Yes ⁸	No ⁶	Yes/limited ¹	Yes/limited (30 days/yr) ¹	Yes/including residential facilities up to 30 vsts/yr ⁸
AR	Medicaid	Yes ²	Yes ²	Yes ³	Yes ²		No ⁶	Yes ²	Yes ²	
CA	Medicaid	Yes ²		Yes ⁷	Yes ²	Yes ²	Yes ⁶	Yes ²	Yes ²	
	Separate Plan	Yes/limited (30 days/yr) ³		Yes (can be substituted for inpt; 2 to 1) ³	Yes/limited (20 vsts/yr) ³	Yes ⁸	Yes (\$5 copay) ³	Yes ¹	Yes/limited (20 vsts/yr) ¹	
CO	Separate Plan	Yes/limited (45 days; 'exceptions for some children') ³	Yes/limited (same as inpt; where 1 inpt day = 2 partial days) ³	Yes/limited (same as inpt; where 1 inpt day = 2 partial days) ³	Yes/limited (20 vsts) ³	No ⁶	Yes ⁸	No ⁶	Yes/limited (20 vsts/yr) ¹	
CT	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²		Yes ⁸	Yes ²	Yes ²	
	Separate Plan	Yes/limited (60 days) ³	Yes/limited (1 inpt day = 2 partial days; inpt limit) ³	Yes/limited (1 inpt day = 2 partial days; inpt limit) ³	Yes/limited ³ (30 visits/yr)	No ⁶	Yes (\$3/\$6 (generic/brand)) ³	Yes/limited (60 days—drug use; 45 days—alcohol) ¹	Yes/limited (60 vsts/year) ¹	

Note: Sources according to footnote number are listed at the end of this table. Data have not been verified with states and are subject to change over time.

DE	Separate Plan	Yes/may be provided under wrap-around provision/limited (31 days) ³	Yes/limited (30 days) ³	Yes ⁸	Yes ⁶	Yes ⁸	Yes ⁸	Yes/limited (30 days) ¹	Yes/limited (30 days) ¹
DC	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes ² (No copay) ³	Yes ²
FL	Medicaid Separate Plan	Yes/limited (15 days/yr) ⁵ Yes/limited (15 days) ³	Yes ² Yes/limited (15 days) ³	Yes ⁷	Yes/limited (20 vsts/yr) ⁵ Yes/limited (20 vsts/yr) ³	Yes ² No ⁸	Yes ⁶	Yes [Copay: \$3/\$6 (generic/brand)] ³	Yes ² Yes/limited (15 days ² for pregnant women only ¹); limited to 7 days for pregnant adolescents ⁸ Yes ² Yes/limited (20 vsts/yr ¹ and for pregnant women only ¹) Yes/limited (20 vsts/yr ¹ and for pregnant women only ¹) \$20,000 ¹ ; this is a combined MH/SA limit ¹
GA	Separate Plan	Yes/limited (30 days/ admission) ³	No ³ Covered for residential programs if child meets SED criteria ⁸	Yes ³	Yes ³	No ⁸	No ⁶	Yes (No copay) ³	Yes (as covered through community mental health centers) ¹ Yes, limited to 24 hrs/year for psychologists and 17 hrs/year for physicians ⁸
HI	Medicaid ³	Yes ³	Yes ³	Yes ³	Yes ³	Yes ³	No ⁶	Yes (no copay) ³	Yes ³
ID	Medicaid	Yes ²	Rehab (does not specify inpt or outpt) ²	Yes ⁷	Yes ²	Yes ²	Yes (No copay) ³	Yes ²	Yes ²
IL	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	Yes ⁶	Yes [Copay: \$2 (133%–150% FPL) \$3/\$5 (generic/brand for 150%–185%)] ³	Yes ² Yes ¹ Yes ²
IN	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes (No copay) ³	Yes ² Yes ²
IA	Medicaid	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ⁶	Yes ² (No copay) ³	Yes ² Yes ³ Yes ²
KS	Separate Plan	Yes/only for biologically based mental illness ³	Yes/only for biologically based mental illness ³	Yes ⁸	Yes/only for biologically based mental illness ³	Yes ⁸	No ⁶	Yes (No copay) ³	Yes/limited (60 days/yr) ¹ Day treatment available through conversion of inpt days ⁸ Yes/limited (25 vsts/yr) ¹

KY	Medicaid Separate Plan	Yes ² Yes ² / limited to 30 days/ episode ⁸	Yes ² Yes/limited to 30 days/ episode ⁸	Yes (included in outpatient program) ⁹	Yes ² Yes ³	Yes ² Yes, only for children with severe or complex MH or SA service needs ⁸	Yes ² Yes ⁶	Yes ² Yes (\$1 copay \$) ¹	Yes ² Yes/limited (30 days/ episode) ¹	Yes ¹ Yes ¹	
LA	Medicaid	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ⁶	Yes (No copay) ³	Yes ¹	Yes/limited (26 vsts/yr) ¹	
ME	Medicaid Separate Plan	Yes ² Yes ³	Yes ²	Yes ⁷	Yes/limited (2 hrs/wk—8 vsts/emergency for indiv; 90 min/ wk for group) ³	Yes ² Yes ⁸	Yes ⁶	Yes (No copay) ³	Yes ² Yes ¹	Yes ² Yes ¹	
MD	Medicaid	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ⁶	Yes (No copay) ³	Yes ²	Yes ²	
MA	Medicaid Separate Plan	Yes ² Yes ³ (limited to 60 days/year in psychiatric hospitals— no limit at general hospital) ⁹	Yes ²	Yes ² Available through con- version of inpt days in psychiatric hospitals ⁸	Yes; 12 vsts automatic ³ Yes ³ —up to 20 \$500/year whichever is greater	No ⁸	Yes ⁶	Yes (No copay) ² Yes ⁸	Yes ² Yes/limited (28 days/ lifetime) ¹ Yes ² /limited to 30 days/ year	Yes ² Day treat- ment avail- able through conversion of inpt-days ⁸	
MI	Separate Plan	Yes/limited (365/ben- efit yr) ⁹	Yes ³	Yes ²	Yes ³	Yes ⁴ covered only for MH condi- tions through CMHCs ⁸	Yes ⁶	Yes ⁴ (No copay ² ; \$1 copay)	Yes ⁴	Yes ¹	Annual dollar max ¹
MN	Medicaid	Yes ²	Rehab (does not specify inpt or outpt) ²	Yes ²	Yes ²	Yes ²	Yes ⁶	Yes ² (No copay) ³	Yes ²	Yes ²	
MS	Medicaid Separate Plan	Yes ² Yes limited (30/benefit period) ⁹	Yes ²	Yes limited (60 days/ benefit period) ⁹	Yes ² Yes (52 vsts/ benefit period) ⁹	Yes ²	No ⁶	Yes ² (No copay) ³ Yes (No copay) ³	Yes ² Yes ¹	Yes ² Yes ¹	\$8,000/year or \$16,000/ lifetime ¹

MO	Medicaid	Yes ²	Yes ²	Yes/limited (may ex-change 1 inpt day for 2 partial days) ¹	Yes ²	Yes ²	Yes ⁶	Yes (No copay) ³	Yes/limited (30 days) ¹	Yes/limited (60 days) ¹	Yes/limited (20 indiv. or 40 group vsts) ¹
MT	Separate Plan	Yes/limited (21 days) ³	Included in inpatient unit ⁸	Yes/limited (may ex-change 1 inpt day for 2 partial days)	Yes ⁷	Yes ²	No ⁶	Yes (No copay) ³	Yes/limited (21 days/yr ¹ and \$4,000/24 mos or \$8,000/lifetime) ⁴	Yes/limited (up to \$1000/yr) ¹	
NE	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ⁸	Yes ⁶	Yes (No copay) ³	Yes ²	Yes ¹	Yes ²
NV	Separate Plan	Yes/limited (20 days per year) ³	Yes ²	Yes ⁷	Yes/limited (20 vsts/year) ³	Yes ⁸	No ⁶	Yes [Copay: \$5 (150%— or 200% FPL)] ³	Yes/limited (\$9,000/yr with detox \$39,000/lifetime) ¹	No ¹	Yes/limited (\$2,500/yr or \$39,000/lifetime) ¹
NH	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes (No copay)	Yes ²	No ¹	Yes ²
	Separate Plan	Yes/limited (15 days/yr) ³	Yes ²	Yes ²	Yes/limited (20 vsts/yr) ³	No ⁶	Yes [Copay: \$5/\$10 (generic/brand)] ³	Yes [Copay: Yes \$5/\$10 (generic/brand)] ³	No ¹ Yes ⁸	No ¹	No ¹ Yes ⁸ Covered for acute episodes 20 vsts/year in combination with outpatient MH services
NJ	Medicaid	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	No ⁶	Yes (No copay)	Yes ²	No ¹	Yes ²
	Separate Plan	Yes ³		Yes ³	Yes ³	Yes only for chronically mentally ill ⁸	Yes ⁶	Yes [Copay: Yes \$1/\$5 (generic/brand)] ³	No ¹	Yes ¹	
NM	Medicaid	Yes ²	Rehab (does not specify inpt or outpt) ²	Yes ²	Yes ²	Yes ²	Yes ⁶	Yes (No copay) ³	Yes ²		Yes ²
NY	Separate Plan	Yes ³ No ^{4, 5, 7, 8}			Yes/limited (20 vsts/yr) ³	No ⁶	Yes ⁶	Yes [Copay: \$1/\$3 (generic/brand)] ³	No ⁴	Yes/limited	(60 vsts/yr) ¹
NC	Separate Plan	Yes ³	Yes ³ (included as part of inpatient limit) ⁸	Yes ²	Yes/limited (26 vsts w/o cert) ³	Yes ⁸	Yes ⁶	Yes [Copay: Yes \$6] ³	Yes ¹	Yes/limited Included in inpatient limit ⁸	(26 vsts/yr) ³

ND	Medicaid	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	
OH	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ⁸	Yes ⁶	Yes ⁶	Yes ⁶	Yes ²	Yes ²	Yes ²	Yes ²	
OK	Medicaid	Yes ²	Yes ²	For Severely Mentally Ill (SMI)/SED members ²	Yes ²	Yes ⁸	No ⁶	Yes ⁶	Yes ⁶	Yes ²	Yes ²	Yes ²	Yes ²	
OR	Separate Plan	Yes ³	Yes ³	(included in inpatient limit) ⁹	Yes ³	Day treatment available through conversion of inpt days ⁸	Yes ⁶	Yes ⁶	Yes ⁶	Yes ⁸	Yes ¹	No ¹	Yes ¹	
PA	Separate Plan	Yes/limited (90 days/yr) ³	Yes ²	Day treatment available through conversion of inpt days ⁸	Yes ²	Yes ³	Yes/limited (50 vsts/yr) ⁹	No ⁶	Yes ⁶	Yes ³	No ¹	No ¹	No ¹	
RI	Medicaid	Yes ²	Yes ²	Yes ²	Yes ²	Yes ⁸	Yes (\$2 copay \$2) ³	Yes (\$2 copay \$2) ³	Yes ⁸	Yes ²	Yes ²	Yes ²	Yes ²	
SC	Medicaid	Yes ²	Yes ²	Yes ³	Yes ²	Yes ²	Yes ⁶	Yes ⁶	Yes ⁶	Yes ²	Yes ²	Yes ²	Yes ²	
SD	Medicaid	Yes ²	No ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes ⁶	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	
TN	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes ⁶	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	\$30,000 ¹
TX	Medicaid	Yes ²	Rehab (does not specify inpt or outpt) ²	Yes ⁷	Yes/limited (30 vsts) ²	Yes ²	No ⁶	Yes/limited (3/mo) ⁷	Yes ²	Yes ²	Yes ²	Yes ²	Yes/limited (30 days/yr) ³	
UT	Separate Plan	Yes/limited (30 days/yr) ³	Yes/limited (may be substituted for inpt). ³	Yes (30 days) ⁹	Yes/limited (30 days/yr) ³	No ⁸	Yes ⁶	Yes (\$1 copay \$1) ³	Yes ⁶	Yes/limited Same as (30 days) ¹	Yes/limited Same as (30 days) ¹	Yes/limited Same as (30 days) ¹	Yes/limited (30 vsts/yr) ¹	

VT	Medicaid	Yes ²	Yes ²	Yes (30 days) ⁹	Yes ²	Yes ⁴	Yes (No copy) ²	Yes ²	Yes ²	Yes ²	
	Separate Plan	Yes ⁸	No ³	Yes (30 days) ⁹	Yes ⁸	Yes ⁸	No ⁶	Yes ⁸	Same as detox ¹	Yes ⁸	
VA	Separate Plan	Yes ³ Yes/covered for services in a general hospital ⁸	No ³	Yes (30 days) ⁹ (26 vsts/yr) ⁹	Yes/limited	Yes/covered only for pregnant adolescents at high risk, and children at high risk, and children with mental retardation, with SED, or at risk for SED ⁸	Yes (No copy) ³	Yes/limited Same as (1 course/ detox ¹); Covered only for pregnant adolescents in residential facilities ⁸	Yes/limited (1 course/ lifetime) for pregnant women only ¹ ; Covered for day treatment services only for pregnant adolescents ⁸	Yes/limited (26 vsts/year) ¹	
WV	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	Yes ⁶	Yes ²	Yes ²	Yes ² Yes (26 vsts combined with outpatient mental health services) ⁹	
WI	Medicaid	Yes ²	Yes ²	Yes ⁷	Yes ²	Yes ²	No ⁶	Yes ²	Yes ²	Yes ²	

1. *News for the states: Substance abuse benefits available in SCHIP*. 1998. www.stateserv.hpts.org; 28.
2. *Managed care tracking system: State profiles on public sector managed behavioral healthcare and other reforms*. 1999. www.samhsa.gov.
3. *A summary of planned mental health and substance abuse services and activities in Title XXI programs*. 1999. Prepared by The National Academy for State Health Policy and The Lewin Group.
4. *CHIP state-by-state summary*. 1998. Children's Defense Fund.
5. *Children's health insurance benefit packages: A comparison of services authorized under Title XXI and child health plans offered in Florida, New York and Pennsylvania*. 1998. www.mchpolicy.org.
6. *Making the grade: National survey of state school-based health care initiatives school year 1997-98*. 1999. The George Washington University. Responses to question 6.
7. *Mental health benefits of approved state children's health insurance plans, Draft*. 1998. National Mental Health Association, Department of State Affairs.
8. Fox, Harriette B., R. Graham, M. McManus, and C. Chen. *An analysis of states CHIP policies affecting children with special health care needs*. 1999. The Child Health Insurance Project—Issue Brief Number 5. Washington, D.C.: Maternal and Child Health Policy Research Center.
9. Heffron, Jennifer and Danielle Davis. 1999. *An Analysis of the Mental Health/Substance Abuse Benefits and Cost-Sharing Policies of Approved State Children's Health Insurance Program Plans*. National Mental Health Association. Alexandria, VA.

Appendix D: Framework for Cost Model

There are separate cells for each age/diagnosis group (5 groups) and service category (12 groups): $5 \times 12 = 60$ cells. The formula for each cell is as follows:

- E = Enrollees in a particular age group: children, ages 0 to 5, children, ages 6 to 11 or adolescents, ages 12 to 18
 Dx = Number of children with a mental health diagnosis, either SED or other mental health conditions (children ages 0 to 5 are a single group)
 U = Users of a particular service
 S = Number of services for a particular category (see following list of categories)
 $\frac{Dx}{E}$ = Prevalence of diagnosis in a particular age group (e.g., 5% of children have SED)
 $\frac{U}{Dx}$ = Rate of annual service use for that diagnostic age group (e.g., 20% of children with SED have a hospital stay)
 $\frac{S}{U}$ = Number of units per user (e.g., 20 days of hospitalization per user per year)
 $\frac{\$}{S}$ = Dollars per service unit (e.g., \$500 per hospital day)
 $\frac{\$}{E}$ = Expenditure per enrollee per year

Service Categories and Units

<i>Mental Health Care</i>	<i>Associated Units</i>
Inpatient Hospital	Days
Residential	Days
Partial Hospitalization	Visit Days
Outpatient	Visits
Case Management	Contacts
School Health	Contacts



Appendix E: Methodologies for Identifying and Measuring Mental Health and Substance Abuse Disorders

Variation in the prevalence of SED and other mental health problems is due in part to definitional and measurement differences from study to study. The National Institutes of Mental Health Diagnostic Interview Schedule for Children Version 2.3 (DISC 2.3) is an interview for children ages 9 to 17 and their parents, administered by lay-interviewers that “elicits DSM criteria for 31 diagnoses that are known to occur in childhood” (Shaffer et al., 1996). Diagnoses are grouped into six disorder modules: anxiety, mood, disruptive, substance abuse, psychotic, and miscellaneous. The DISC 2.3 covers the 6 months prior to the interview. After much discussion about how to define SED in children and adolescents, Federal guidelines now state that “children with a serious emotional disturbance are persons from birth to age 18 who currently or at any time during the past year have had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within DSM-III-R that resulted in functional impairment which substantially interferes with or limits the child’s role or functioning in family, school, or community activities” (Narrow, 1998). This definition was announced in the *Federal Register Notice* on May 20, 1993. Noteworthy in this definition is the fact that both a psychiatric diagnosis and a significant functional impairment must be present for a diagnosis of SED to be made (Costello et al., 1998).

Several different instruments are used in combination with the DISC to assess the presence and severity of functional impairment in children and adolescents to further diagnose children and adolescents with SED. Five instruments are noted most frequently in the literature.

The Children's Global Assessment Scale (CGAS) (Shaffer et al., 1983) is used to measure impairment in children ages 4 to 16. The scale ranges from 1 to 100, 1 being the most functionally impaired and 100 being the healthiest. Children scoring above 70 on the CGAS are said to be functioning in the normal range (Shaffer et al., 1983). Friedman (1987) notes that, in the process of establishing the prevalence of SED in children in his major review of the issue for SAMHSA, a technical advisory group determined that functional impairment should include children and adolescents who received a CGAS score of 60 or less.

Three additional measures of mental health disorders in children and adolescents are the Child and Adolescent Psychiatric Assessment (CAPA), the Child and Adolescent Burden Assessment (CABA), and the Child and Adolescent Functional Assessment Scale (CAFAS). CAPA measures the level of risk that children and adolescents are at for using mental health services (Costello et al., 1996a). The CABA measures the burden on the family caused by the child's or adolescent's mental health disorder (Burns et al., 1997). The CAFAS "rates the child on role performance at school, ability to think clearly, behavior toward self and others, mood and emotional state, and caregiver's resources, needs and level of social support" (Costello et al., 1996a).

As with emotional and functional disorders, there are several different measurement

instruments that are used to assess and treat substance abuse disorders among adolescents. The Center for Substance Abuse Treatment developed a Treatment Improvement Protocol (TIP) that assists providers in assessing and treating substance abusing adolescents (Winters, 1999). The TIP has four main objectives: providing screening guidelines for assessing substance use disorders; informing a wide array of individuals who may work with or come in contact with youth; discussing successful strategies employed by service providers to identify substance abuse problems and address them appropriately; and developing a screening system that can be implemented in a variety of settings.

Two types of tools—screening instruments and comprehensive assessment instruments—are presented in CSAT's TIP Series 31. Both types are used to assess and treat substance-using adolescents. However, screening instruments are simply used to establish that an adolescent may have a substance abuse problem, while a comprehensive assessment confirms that a problem exists and determines if there are other problems linked to the substance abuse disorder. Tables E-1 and E-2 summarize examples of both types of instruments and provide a brief explanation of their purpose. For more information, please refer to the *Screening and Assessing Adolescents for Substance Use Disorders Treatment Improvement Protocol (TIP) Series 31*.

Table E.1: Screening Instruments for Substance-Using Adolescents

<i>Title of Instrument</i>	<i>Purpose</i>
Adolescent Drinking Index (ADI)	ADI assesses alcohol use in adolescents who have psychological, emotional, or behavioral problems, and it can help develop treatment protocols.
Adolescent Drug Involvement Scale (ADIS)	This scale assesses screens adolescents for their use of drugs other than alcohol.
Drug and Alcohol Problem (DAP) Quick Screen	This is a quick screen that assesses adolescent substance abuse problems, relationship with parents, and parents' use of alcohol and other drugs.
Drug Use Screening Inventory-Revised (DUSI-R)	This screen evaluates adolescents on the following items: use of drugs, problem areas, treatment progress, and estimated likelihood of drug use.
Personal Experience Screening Questionnaire (PESQ)	The PESQ indicates the level of need for a comprehensive drug use evaluation. In addition, it screens for select psychosocial problems.
Problem Oriented Screening Instrument for Teenagers (POSIT)	POSIT is used to identify problems that need further assessment.
Rutgers Alcohol Problem Index (RAPI)	The RAPI screens for adolescent drinking problems.
Teen Addiction Severity Index (T-ASI)	This screen provides basic information on adolescents who are entering inpatient care for substance use problems.
Source: (SAMHSA, 1999c)	

Table E.2: Comprehensive Assessment Instruments for Substance-Using Adolescents

<i>Title of Instrument</i>	<i>Purpose</i>
Adolescent Drug Abuse Diagnosis (ADAD)	The ADAD assesses substance use and other problems, and it contributes to a treatment plan.
Adolescent Diagnostic Interview (ADI)	This screen provides information on adolescents who are suspected of using drugs. It also screens for mental and behavioral problems that often accompany drug use.
Adolescent Self-Assessment Profile (ASAP)	ASAP provides an assessment of the adolescent's psychosocial adjustment and substance use involvement.
The American Drug and Alcohol Survey (ADAS)	This instrument is employed by schools to assess levels of substance use among students. Results are used to educate communities on the severity of substance use problems among adolescents in the community.
The Chemical Dependency Assessment Profile (CDAP)	The CDAP collects information regarding substance use history and patterns of use. In addition, it covers attitudes about treatment and self-concept.
Comprehensive Adolescent Severity Inventory (CASI)	CASI provides an in-depth assessment of substance use severity.
Hilson Adolescent Profile (HAP)	This instrument is intended for use by service providers who work with troubled youth. The tool assesses the presence of behavioral problems and identifies at-risk youth.
Juvenile Automated Substance Abuse Evaluation (JASAE)	JASAE establishes drug and alcohol use by adolescents between ages 12 and 18.
Personal Experience Inventory (PEI)	This instrument assesses the extent to which psychological and behavioral issues co-exist with substance use issues; assesses risk factors; and tries to determine appropriate treatment.
Prototype Screening/Triage Form for Juvenile Detention Centers	The screen assesses a juvenile's overall risk and needs.
The Texas Christian University Prevention Intervention Management and Evaluation System (TCU/PMES)	The TCU/PMES assesses substance abuse in adolescents, assesses the best treatment modality, and provides follow-up assessment and evaluation.

XI.

Appendix F: Cost Model Workbook

INTRODUCTION

The cost model explained in this workbook is intended to help you estimate the cost of mental health benefits for children and adolescents in the SCHIP plan. The workbook walks you through the steps of the cost model and answers questions you might have as you work through the program.

REQUIREMENTS

The SCHIP Mental Health Services Model was developed in Excel97®, so the minimum version required is Excel97®. To check which version of Excel is on your machine, open Excel, go to the HELP menu, and click on ABOUT MICROSOFT EXCEL.

ACCESSING THE COST MODEL FROM THE WORLD WIDE WEB

<http://www//mentalhealth.org/CMHS/man-aged care>

DISPLAY SETTING

If your screen is set up with a smaller font and icons, the model may be more difficult to read. To change the setting in Windows for a better view of the model, follow the instructions below. Note that these instructions assume you are using Windows 95 or later versions.

1. Click on the START button (usually at the lower left corner of your screen).

2. Point to SETTINGS and then click on CONTROL PANEL.
3. Click on the icon for DISPLAY. Click on the tab for SETTINGS.
4. In the section called “Desktop Area,” change the setting to 640 by 480 pixels.
5. Click on APPLY and then on OK.

To change the setting back to the original, follow Steps 1 through 4 and select the original pixels setting in the “Desktop Area.”

As in other Windows applications:

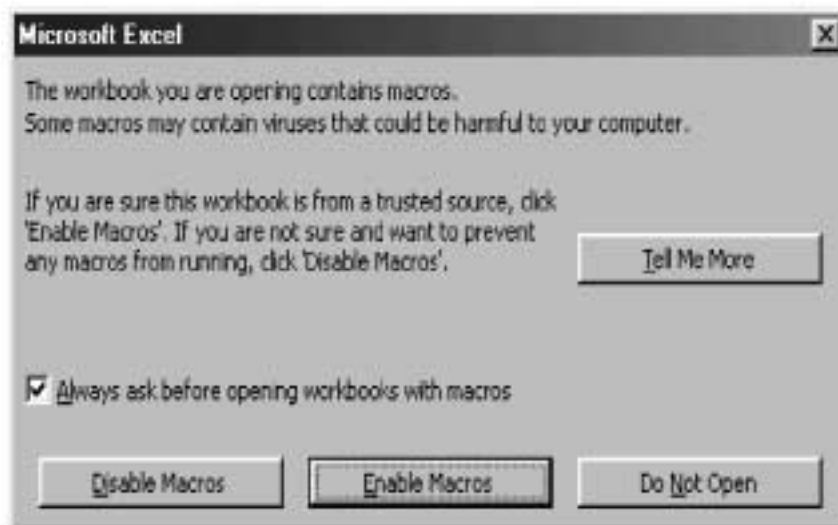
- If any text is not visible on your screen, place your mouse on the horizontal or vertical scroll bar and click on your mouse once. To scroll to the right and left or up and down on the screen, continue to click on your mouse.
- To avoid losing any information while working on the cost model, it is recommended that you save your file frequently. To save your work, click the SAVE command on the FILE menu. (This is preferable to clicking on the Windows button.)

If you want to rename the file, click on SAVE AS and type in the new file name. The SAVE command will overwrite with newly entered information. If you want to create a new version, you must use SAVE AS and assign a new file name. Please note that the cost model uses approximately 760KB of space, or the majority of a standard diskette, so you should save multiple versions only when they will be reused.

- To close the program, click on the END MODEL box on the menu bar. (See details later regarding END MODEL.) You will be prompted with the SAVE AS screen. Don't close the file by clicking the box in the upper right-hand corner.

Screen 1

When you open the file, click on the box indicating that you want to Enable Macros. If you are concerned about viruses, run your virus checking software at that time.



Screen 2

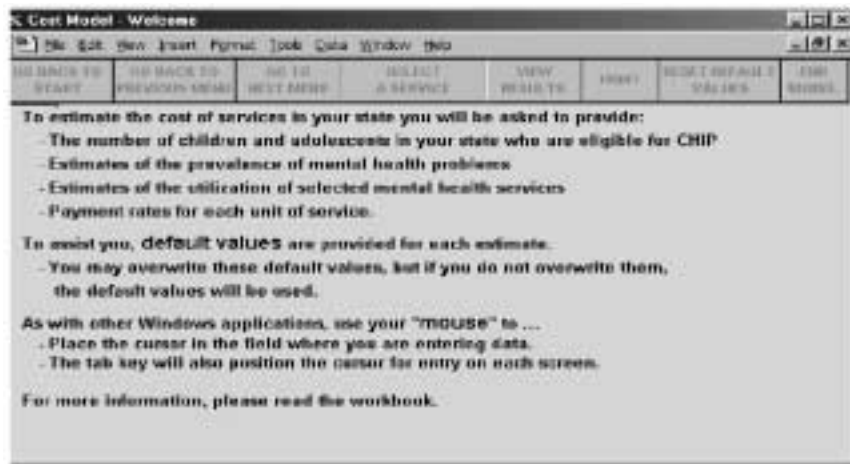
The next screen that you see is an introduction that explains the purpose of the cost model and how to use it.

When you finish reading this screen, click once on the box at the bottom right that says **CLICK HERE TO CONTINUE**.



Screen 3

This screen gives additional instructions on how to use the model.



BUTTON BAR

The large bar at the top of the screen allows you to perform certain functions as follows (this will appear on every screen in the cost model):

- **GO BACK TO START:** Click on this box to go back to the start of the cost model.
- **GO BACK TO PREVIOUS MENU:** Click on this box to go back to the previous menu.
- **GO TO NEXT MENU:** Click on this box to go to the next menu.
- **SELECT A SERVICE:** This option allows you to select the specific mental health service data you wish to modify.
- **VIEW RESULTS:** At any time you can click on this box and view the results of the cost model. Results can be calculated at any time because default values are used.
- **PRINT:** Use this to print your results.
- **RESET DEFAULT VALUES:**

If you input your own values for a particular service, and then decide you want to reset the values, click on this box and the values will be reset only for the page you are viewing. If you wish to reset all default values, and start over using the default values, click on GO BACK TO START, pause while the program returns to start, and then click on RESET DEFAULT VALUES.

- **END MODEL:** Click on this box when you want to exit the cost model.

USING THE MODEL TO DEVELOP COST ESTIMATES

Click on GO TO NEXT MENU to proceed.

Here's how to use the cost model to develop cost estimates.

Screen 4

Cost Model - Form

File Edit View Insert Format Tools Data Window Help

GO BACK TO START GO BACK TO PREVIOUS MENU GO TO NEXT MENU SELECT A SERVICE VIEW RESULTS PRINT RESET DEFAULT VALUES END MODEL

NUMBER OF CHIP-ENROLLED CHILDREN

Now please enter the estimated number of children enrolled in CHIP in a month:

Estimated number of children aged 0-5 1,000

Estimated number of children aged 6-11 1,000

Estimated number of adolescents aged 12-18 1,000

If enrollment is available and you have program-enrolled by age, use the same percentage of enrolled children. Otherwise, use a number. If you do not enter a number, the program will use an estimate of 800 CHIP children.

Start Cost Model - Form 12:00 PM

This screen asks you to provide information regarding the number of SCHIP eligibles in three age groups. With your mouse, move the cursor to the box for the age group you want and click once. This will highlight the box and allow you to insert a value.

- When you insert a value, hit ENTER to proceed.
- Repeat for each value you want to change. If you do not change a value, the default value will be used.
- Throughout the model, a help box pops up when you place the cursor on the red dot inside each box. The help boxes tell you how to select an estimate, based on known ranges. The boxes disappear when you move the cursor.
- Click on GO TO NEXT MENU to proceed.

Screen 5

Screen 5 asks you to provide estimates of the prevalence of serious emotional disturbance (SED) and other mental illness among children and adolescents. Replace the default values as you did on the previous screen.

Cost Model - Form

GO BACK TO START | GO BACK TO PREVIOUS MENU | GO TO NEXT MENU | SELECT A SERVICE | OTHER RESULTS | PRINT | RESET DEFAULT VALUES | END

PREVALENCE OF MENTAL HEALTH PROBLEMS

Please enter the percentage of:

Category	Prevalence (%)
Children 0-5 with Mental Health Problems	6.0%
Children 6-11 with ...	
Serious Emotional Disturbance (SED)	6.0%
Other Mental Health Problems	9.0%
Adolescents with ...	
Serious Emotional Disturbance (SED)	9.0%
Other Mental Health Problems	11.0%

Start | Cost Model - Form | 12:01 PM

- Click on GO TO NEXT MENU to proceed.

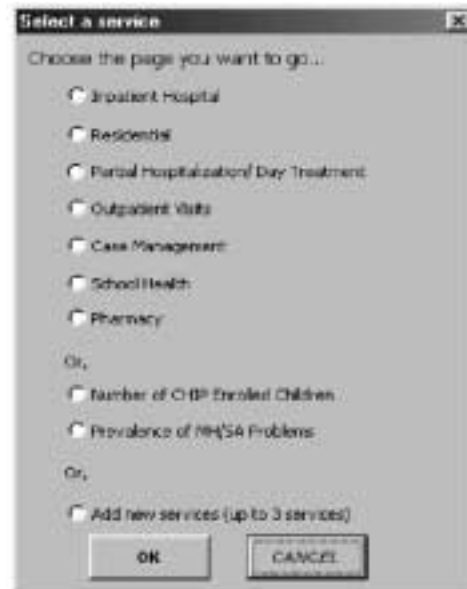
Screens 6 through 12

The next seven screens are service specific. They include Inpatient Hospital, Residential, Partial Hospitalization/Day Treatment, Outpatient, Case Management, School Health, and Pharmacy. All of these screens ask you to fill in the rate of service use, the number of units used (i.e., days, visits, prescriptions), and total cost. Information is requested for children ages 0 to 5 and ages 6 to 11, and for adolescents. For children ages 6 to 11 and adolescents, you will be asked to provide information for the SED population and for children or adolescents with other mental health problems. *If the rate of service use that you enter is less than one you must use a leading zero before the decimal place (e.g., 0.01 not .01).*

	Children 0-5	Children 6-11		Adolescents	
		SED	Other	SED	Other
Rate of annual service use	2.7%	9.4%	4.2%	10.0%	5.0%
Number of units per user (days)	11.0	38.5	19.3	24.0	12.0
Dollars per day	\$701	\$701	\$701	\$701	\$701

Enter the percentage of adolescents with other mental health problems who are using inpatient hospital stay in a year. Estimates range from 0% to 10%. The default is 5.0%. Please enter a number that is 0.01 to 10.0. Do not enter a percent sign, such as 5.0% (just enter 5).

- Click on GO TO NEXT MENU to proceed to the next screen or click on “SELECT A SERVICE” if you would like to select a specific service.



- **SELECT A SERVICE:** As you move through the model, click on this box to go to or to return to a particular service screen and make changes without scrolling through all the previous pages. Click on the service or menu you wish to go to and click OK.

Beyond screen 12

When you come to the last service-specific screen, Pharmacy, and select GO TO NEXT MENU, the program will ask if you would like to add any services that were not included in the cost model program. Click on YES or NO, and then hit OK.



- If you select YES, you will be provided with a table shell where you can insert an additional mental health service and fill in values for each category. To create a title, double-click on Enter Service Name Here and type your service title. Move the cursor to each box, double-click on the box, enter the value, and hit ENTER to continue.

GO BACK TO START	ADD ANOTHER SERVICE	SELECT A SERVICE	VIEW RESULTS	RESET DEFAULT VALUES	PRINT	END MODEL
------------------	---------------------	------------------	--------------	----------------------	-------	-----------

MENTAL HEALTH SERVICE 1
[Enter service name here]

	Children 0-5	Children 6-11		Adolescents	
		SED	Other	SED	Other
Rate of annual service use	0.0%	0.0%	0.0%	0.0%	0.0%
Number of units per user	0.0	0.0	0.0	0.0	0.0
Dollars per day	\$0	\$0	\$0	\$0	\$0

- When you complete the screen, if you want to add another service, click on ADD ANOTHER SERVICE in the menu bar at the top of the screen, and repeat the steps outlined above.
- If you select No, you will be prompted to choose the type of results (i.e., per-person or total expenditures) that you want to view. (See below for more detail in viewing results.)

Viewing and Printing Results

- **VIEW RESULTS:** When you finish inserting values for services originally provided and/or adding your own services, click on VIEW RESULTS to see per-person or total expenditures. Select the type of results you wish to see and click OK. To toggle between the total expenditure and per-person expenditure menus, click on GO TO NEXT MENU.

Results

Please choose the type of results you want to view. You can only choose one at a time.

☒ Total Expenditures

☐ Per Person Expenditures

OK CANCEL

- PRINT: Once you have viewed results, you may want to print them. To print the parameters you have used, click on Print Information. To print the results, click on Print Results. You may choose one or both, and then hit OK.



Exiting

You have now completed the cost model. At this point, you may choose to do one of several things:

- You may want to save this version of the model with the revised parameters. In this case, when you reopen the model, it will contain all the new parameters you have entered. If so, click on END MODEL. When you are asked if you want to exit the model, click on YES. Then rename and save your document by typing in a new file name and clicking on Save. After saving the document, the Excel program will shut down.



- You may want to close the model without saving the revised parameters. In this case, when you reopen the model it will contain the default values. If so, click on END MODEL. When you are asked if you want to exit the model, click on YES, and then click CANCEL. You will be asked again if you would like to save the changes to the cost model. If you click on NO, the program will close, and your file will not be saved.

XII. Glossary

Default Value:	The default values are derived from the ranges of prevalence, utilization, and costs of mental health diagnoses and services in the literature review. These values are used by the model if the user does not input his or her own values.
Menu Bar:	This bar at the top of the screen shows the option boxes. Clicking on the boxes lets the user go back to the start page; go to the previous menu; go to the next menu; select a specific service page in the model; view the cost model results; or print the page.
Help Box:	A help box pops up when the user places the cursor inside the red dot on a box.
Rate of Service Use:	This value is the percentage of children or adolescents with a mental health problem, or with SED, who used the particular service.
Number of Units:	This is the number of days, visits, prescriptions, etc., per child or per adolescent in a year.
Dollars per Service:	This value is the average expenditure per day, visit, hour, or prescription for each service.



DHHS Publication Number SMA 01-3473

Printed 2001

CSAT
Center for Substance
Abuse Treatment
SAMHSA